

2011 STEP 2 CK STUDY GUIDE

- Featuring Brian Jenkins, MD and additional Doctors In Training physician educators
- High-yield review course that references Step Up to Step 2
- Daily quizzes and review materials encourage active learning
- Consolidates rotation knowledge and prepares you for internship



DOCTORS IN TRAINING
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	Lecture 1	Lecture 2	Lecture 3
Day 1	Neurology (1 of 4)	Neurology (2 of 4)	Psychiatry (1 of 2)
Day 2	Neurology (3 of 4)	Neurology (4 of 4)	Psychiatry (2 of 2)
Day 3	Endocrine (1 of 2)	Endocrine (2 of 2)	Emergency Medicine (1 of 1)
Day 4	Cardiovascular (1 of 4)	Cardiovascular (2 of 4)	Trauma (1 of 1)
Day 5	Cardiovascular (3 of 4)	Cardiovascular (4 of 4)	Basic Critical Care and Surgical Concerns (1 of 1)
Day 6	Pulmonary (1 of 3)	Pulmonary (2 of 3)	Pulmonary (3 of 3)
Day 7	Gastrointestinal (1 of 5)	Gastrointestinal (2 of 5)	Epidemiology & Ethics (1 of 1)
Day 8	Gastrointestinal (3 of 5)	Gastrointestinal (4 of 5)	Gastrointestinal (5 of 5)
Day 9	Genitourinary (1 of 3)	Genitourinary (2 of 3)	Genitourinary (3 of 3)
Day 10	Heme/Onc (1 of 3)	Heme/Onc (2 of 3)	Heme/Onc (3 of 3)
Day 11	Musculoskeletal (1 of 3)	Musculoskeletal (2 of 3)	Musculoskeletal (3 of 3)
Day 12	Dermatology (1 of 3)	Dermatology (2 of 3)	Dermatology (3 of 3)
Day 13	Gynecology (1 of 3)	Gynecology (2 of 3)	Gynecology (3 of 3)
Day 14	Obstetrics (1 of 4)	Obstetrics (2 of 4)	Obstetrics (3 of 4)
Day 15	Obstetrics (4 of 4)	Pediatrics (1 of 2)	Pediatrics (2 of 2) Preventative Medicine (1 of 1)

Lecture 1-1: Neurology Part 1

- Normal Neurologic and Neurovascular Function (SU2 p169 – SU2 p171)
- Neurologic Infection (SU2 p169 – SU2 p174)
- Headache (SU2 p174)

Lecture 1-2: Neurology Part 2

- Cerebrovascular and Hemorrhagic Diseases (SU2 p174 – SU2 p179)
- Seizure Disorders (SU2 p179 – SU2 p182)
- Pediatric Neurologic Issues (SU2 p189 – SU2 p191)

Lecture 1-3: Psychiatry Part 1

- Psychiatric Evaluation (SU2 p278 – SU2 p279)
- Mood Disorders (SU2 p279 – SU2 p282)
- Anxiety Disorders (SU2 p282 – SU2 p284)
- Psychotic Disorders (SU2 p284 – SU2 p286)

Lecture 2-1: Neurology Part 3

- Degenerative Neurologic Disorders (SU2 p182 – SU2 p184)
- Peripheral Neurologic and Neuromuscular Disorders (SU2 p184 – SU2 p185)
- Neoplasms (SU2 p185 – SU2 p187)
- Sleep and Loss of Consciousness (SU2 p187 – SU2 p189)

Lecture 2-2: Neurology Part 4

- Ophthalmology (SU2 p191 – SU2 p194)
- Audiovestibular Disorders (SU2 p194 – SU2 p195)

Lecture 2-3: Psychiatry Part 2

- Personality Disorders (SU2 p286 – SU2 p288)
- Substance Abuse (SU2 p288 – SU2 p289)
- Eating Disorders (SU2 p288 – SU2 p290)
- Somatoform and Factitious Disorders (SU2 p290 – SU2 p291)
- Delirium and Dementia (SU2 p291 – SU2 p293)
- Pediatric Psychiatric Disorders (SU2 p293 – SU2 p295)

Lecture 3-1: Endocrine Part 1

- Disorders of Glucose Metabolism (SU2 p107 – SU2 p112)
- Thyroid Disorders (SU2 p112 – SU2 p115)

Lecture 3-2: Endocrine Part 2

- Parathyroid Disorders (SU2 p115 – SU2 p116)
- Pituitary and Hypothalamic Disorders (SU2 p116 – SU2 p119)
- Adrenal Disorders (SU2 p119 – SU2 p123)
- Multiple Endocrine Neoplasia (SU2 p123)
- Pediatric Endocrine Concerns (SU2 p123)

Lecture 3-3: Emergency Medicine

- Accidents and Injury (SU2 p147 – SU2 p150)
- Toxicology (SU2 p150 – SU2 p151)
- Cardiovascular Emergencies (SU2 p151 – SU2 p152)

Lecture 4-1: Cardiovascular Part 1

- Normal Cardiac Anatomy, Physiology, and Function (SU2 p1 – SU2 p2)
- Ischemic Heart Disease (SU2 p2 – SU2 p9)

Lecture 4-2: Cardiovascular Part 2

- Arrhythmias (SU2 p9 – SU2 p14)
- Heart Failure (SU2 p15 – SU2 p16)
- Valvular Diseases (SU2 p17, SU2 p18)
- Cardiomyopathies (SU2 p19, SU2 p20)
- Pericardial Diseases (SU2 p17, SU2 p20)

Lecture 4-3: Trauma

- Traumatology (SU2 p152 – SU2 p159)
- Abuse and Sexual Assault (SU2 p159 – SU2 p160)

Lecture 5-1: Cardiovascular Part 3

- Myocardial Infections (SU2 p21 – SU2 p22)
- Hypertension (SU2 p22 – SU2 p23, SU2 p24, SU2 p25, SU2 p26)
- Shock (SU2 p23, SU2 p26)

Lecture 5-2: Cardiovascular Part 4

- Vascular Diseases (SU2 p23, SU2 p25, SU2 p27 – SU2 p29)
- Pediatric Cardiology (SU2 p29 – SU2 p32)

Lecture 5-3: Basic Critical Care and Surgical Concerns

- Issues in the Intensive Care Unit (SU2 p160 – SU2 p161)
- Hemodynamic Stability (SU2 p161 – SU2 p163)
- Preoperative and Postoperative Issues (SU2 p163 – SU2 p165)
- Surgical Emergencies (SU2 p165 – SU2 p166)
- Transplantation (SU2 p166 – 168)

Lecture 6-1: Pulmonary Part 1

- Measures of Pulmonary Function (SU2 p33 – SU2 p35)
- Respiratory Infections (SU2 p33 – SU2 p39, SU2 p40)
- Acute Respiratory Distress Syndrome (ARDS) (SU2 p39)

Lecture 6-2: Pulmonary Part 2

- Obstructive Airway Diseases (SU2 p40 – SU2 p42)
- Respiratory Neoplasms (SU2 p42 – SU2 p45)
- Interstitial Lung Diseases and Other Lung Diseases (SU2 p45 – SU2 p47)

Lecture 6-3: Pulmonary Part 3

- Vascular and Thromboembolic Pulmonary Conditions (SU2 p47 – SU2 p48)
- Pleural Diseases (SU2 p48 – SU2 p50)
- Sleep Apnea (SU2 p51)
- Pulmonary Surgical Concerns (SU2 p51 – SU2 p52)
- Pediatric Pulmonary Concerns (SU2 p53 – SU2 p55)

Lecture 7-1: Gastrointestinal Part 1

- Gastrointestinal Infections (SU2 p56 – SU2 p57, SU2 p58 – SU2 p61)
- Oral and Esophageal Conditions (SU2 p57, SU2 p59 – SU2 p62, SU2 p63, SU2 p64)

Lecture 7-2: Gastrointestinal Part 2

- Gastric Conditions (SU2 p62, SU2 p64 – SU2 p66)
- Pancreatic Disorders (SU2 p77 – SU2 p80)

Lecture 7-3: Epidemiology & Ethics

- Research Studies (SU2 p296 – SU2 p298)
- Biostatistics (SU2 p296 – SU2 p300)
- Ethics (SU2 p300 – SU2 p302)

Lecture 8-1: Gastrointestinal Part 3

- Intestinal Conditions (SU2 p67 – SU2 p72)

Lecture 8-2: Gastrointestinal Part 4

- Intestinal Conditions (SU2 p72 – SU2 p77)
- Biliary Disorders (SU2 p80 – SU2 p81)

Lecture 8-3: Gastrointestinal Part 5

- Hepatic Disorders (SU2 p81 – SU2 p85)
- Pediatric GI Disorders (SU2 p85 – SU2 p88)

Lecture 9-1: Genitourinary Part 1

- Normal Renal Function (SU2 p89)
- Diuretics (SU2 p90)
- Disorders of the Kidney (SU2 p89 – 93)
- Glomerular Diseases (SU2 p93 – SU2 p96)

Lecture 9-2: Genitourinary Part 2

- Renal Failure (SU2 p96 – SU2 p97)
- Acid-Base Disorders (SU2 p97 – SU2 p99)
- Electrolyte Disorders (SU2 p99 – SU2 p102)

Lecture 9-3: Genitourinary Part 3

- Bladder and Ureteral Disorders (SU2 p102 – SU2 p103)
- Male Reproduction (SU2 p103 – SU2 p105)
- Pediatric Genitourinary Concerns (SU2 p105 – SU2 p106)

Lecture 10-1: Hematology and Oncology Part 1

- Anemias (SU2 p124 – SU2 p129)
- Genetic Disorders of Hemoglobin (SU2 p129 – SU2 p132)

Lecture 10-2: Hematology and Oncology Part 2

- Leukocyte Disorders and Hypersensitivity (SU2 p132 – SU2 p133)
- Clotting Disorders (SU2 p133 – SU2 p136)
- Hematologic Infections (SU2 p136 – SU2 p137)

Lecture 10-3: Hematology and Oncology Part 3

- Hematologic Infections (HIV) (SU2 p137 – SU2 p141)
- Hematologic Neoplastic Conditions (SU2 p141 – SU2 p143)
- Oncologic Therapy (SU2 p144 – SU2 p145)
- Other Pediatric Hematologic and Oncologic Concerns (SU2 p145 – SU2 p146)

Lecture 11-1: Musculoskeletal Disorders Part 1

- Common Adult Orthopedic Conditions (SU2 p196 – 198)
- Spine (SU2 p199 – SU2 p201)

Lecture 11-2: Musculoskeletal Disorders Part 2

- Metabolic Bone Diseases (SU2 p201 – SU2 p203)
- Infection (SU2 p204 – SU2 p205)
- Osteoarthritis (SU2 p205)
- Neoplasms (SU2 p210 – SU2 p211)

Lecture 11-3: Musculoskeletal Disorders Part 3

- Rheumatologic Diseases (SU2 p206 – SU2 p210)
- Pediatric Orthopedics (SU2 p211 – SU2 p215)

Lecture 12-1: Dermatology Part 1

- Infections (SU2 p216 – SU2 p219)

Lecture 12-2: Dermatology Part 2

- Inflammatory Skin Conditions (SU2 p219 – SU2 p221)

Lecture 12-3: Dermatology Part 3

- Bullous Diseases (SU2 p221 – SU2 p222)
- Neoplasms (SU2 p222 – SU2 p223)
- Plastic Surgery (SU2 p223 – SU2 p224)

Lecture 13-1: Gynecology Part 1

- Menstrual Physiology (SU2 p225 – SU2 p229)
- Contraception (SU2 p229 – SU2 p231)
- Menstrual Disorders and Issues (SU2 p229 – SU2 p233)

Lecture 13-2: Gynecology Part 2

- Menstrual Disorders and Issues (SU2 p233 – SU2 p235)
- Common Gynecologic Infections (SU2 p235 – SU2 p236)
- Sexually Transmitted Diseases (SU2 p236 – SU2 p238)

Lecture 13-3: Gynecology Part 3

- Gynecologic Neoplasms (SU2 p239 – SU2 p242)
- Disorders of the Breast (SU2 p242 – SU2 p245)

Lecture 14-1: Obstetrics Part 1

- Normal Pregnancy Physiology (SU2 p246)
- Prenatal Care (SU2 p246 – SU2 p247)
- Medical Complications of Pregnancy (SU2 p247 – SU2 p252)

Lecture 14-2: Obstetrics Part 2

- Medical Complications of Pregnancy (SU2 p252 – SU2 p255)
- Obstetric Complications of Pregnancy (SU2 p253 – SU2 p257)

Lecture 14-3: Obstetrics Part 3

- Obstetric Complications of Pregnancy (SU2 p257 – SU2 p260)
- Gestational Trophoblastic Neoplasms (SU2 p266)

Lecture 15-1: Obstetrics Part 4

- Labor and Delivery (SU2 p260 – SU2 p266)

Lecture 15-2: Pediatrics Part 1

- Development and Health Supervision (SU2 p267 – SU2 p272)

Lecture 15-3: Pediatrics Part 2

- Immune Disorders (SU2 p273 – SU2 p275)
- Genetic Disorders (SU2 p273, SU2 p275 – SU2 p277)
- Preventive Medicine and Vitamins

Doctors In Training: USMLE Step 2 CK Review – Day 1 Review Quiz

1. What is the treatment for an MI due to cocaine overdose?
2. In which immunodeficiency is there an absence of a thymic shadow on newborn chest x-ray?
3. A post-op patient has poor urine output, a BUN of 85, creatinine of 3, and clear lungs. What is the next step in the management of this patient?
4. Which vaccines should not be given to a HIV-positive patient?
5. When would you suspect thrombocytopenia due to heparin use? What is the most feared complication of heparin-induced thrombocytopenia?
6. What is the next step in the management of a child with severe asthma exacerbation and persistently low oxygen saturation despite medication?
7. What is the classic presentation of a patient with androgen insensitivity syndrome?
8. What is the most common foodborne bacterial GI tract infection? (SU2 p57)
9. What is the classic presentation of a patient with hyperprolactinemia? (SU2 p117)
10. What lab changes will be seen in a patient with hyperaldosteronemia? (SU2 p120)
11. What is the antidote for the following type of overdose?

Opioids	
Heparin	
Benzodiazepines	
Barbiturates (phenobarbital)	
Carbon monoxide	

12. What type of oral contraceptive can be given to lactating women?
13. What is the definition of primary amenorrhea?

Doctors In Training: USMLE Step 2 CK Review – Day 2 Review Quiz

1. What complication may arise from performing an LP in a patient with elevated intracranial pressure? (SU2 p170)
2. A child presents to the ER with mental status changes, hypoglycemia, and lesions suggestive of chickenpox. What is the most likely diagnosis?
3. What is the most effective way to prevent bacterial meningitis in newborns? (SU2 p169)
4. How do the symptoms of encephalitis differ from that of meningitis? (SU2 p171)
5. What is the initial radiologic study in a patient with TIA/stroke symptoms? What radiologic studies need to be performed later to evaluate the underlying cause of the TIA/stroke? (SU2 p175)
6. What are the symptoms of a basilar artery stroke? (SU2 p176)
7. Comparing ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage, what are the different BP goals and BP medications? (SU2 p177)
8. What are the signs/symptoms of TCA overdose? How is it managed? (SU2 p281)
9. What is the treatment for nephrogenic diabetes insipidus caused by lithium toxicity?
10. How do the features of acute dystonia differ from tardive dyskinesia? (SU2 p285)
11. How does the treatment of acute dystonia differ from that of tardive dyskinesia? (SU2 p285)
12. What EEG pattern is seen in cases of absence seizures? (SU2 p180)

Doctors In Training: USMLE Step 2 CK Review – Day 3 Review Quiz

1. What is the typical complaint of a patient with retinal detachment?
2. What is the treatment for benign paroxysmal positional vertigo (BPPV)?
3. What is Todd's paralysis?
4. Categorize the following antidepressants as a SSRI, TCA, MAOI, NDRI, or SNRI. (SU2 p281)
nortriptyline, selegiline, bupropion, mirtazapine, fluvoxamine, doxepin, phenelzine, fluoxetine, clomipramine, imipramine, amitriptyline, nefazodone, milnacipran, desipramine, sertraline, venlafaxine, paroxetine, tranylcypromine, duloxetine, escitalopram, citalopram, trazodone, isocarboxazid

SSRI - NDRI -
TCA - SNRI -
MAOI - Tetracyclic -
5. What drugs when combined with SSRI's are known for causing Serotonin syndrome?
6. What is most common cause of sensorineural hearing loss? What is the most common cause of conductive hearing loss?
7. What is the most common complication of recurrent otitis media?
8. An elderly patient presents to the ER with a headache and dilated right pupil. During the history, she reports that she fell at home 5 days ago. What is the most likely diagnosis?
9. What medications other than stimulants are used in the treatment of ADHD?
10. What medications are used in the treatment of Tourette's syndrome?
11. What are the most worrisome side effects of the ADHD drug atomoxetine?
12. What is the definitive treatment for an epidural or subdural hematoma?
13. What serum lab abnormalities might you see in a patient with bacterial meningitis? (SU2 p169)
14. A patient comes to clinic with the complaint of hearing loss and vertigo. On examination of the tympanic membrane you note a grayish-white "pearly" lesion involving the TM. What is the diagnosis?

Doctors In Training: USMLE Step 2 CK Review – Day 4 Review Quiz

1. What is the treatment for hyperparathyroidism due to parathyroid hyperplasia?
2. Categorize the following antipsychotics in the appropriate category as neuroleptics (low, moderate, or high potency) or atypical antipsychotics. (SU2 p285)
olanzapine, thioridazine, quetiapine, molindone, chlorpromazine, haloperidol, fluphenazine, loxapine, risperidone, thiothixene, trifluoperazine, clozapine, aripiprazole, paliperidone, droperidol

Neuroleptic (High potency) –

Neuroleptic (Low potency) –

Neuroleptic (Moderate potency) –

Atypical antipsychotic –
3. What mineralocorticoid medication is used in the treatment of aldosterone deficiencies such as adrenal insufficiency and 21-hydroxylase deficiency?
4. A lesion to which area of the brain is responsible for the following clinical scenario:
 - Contralateral hemiballismus
 - Hemispatial neglect syndrome
 - Coma
 - Poor repetition
 - Poor comprehension
 - Poor vocal expression
 - Resting tremor
 - Intention tremor
 - Hyperorality, hypersexuality, disinhibited behavior
 - Personality changes
 - Dysarthria
 - Agraphia and acalculia
5. At what age do physicians begin to dose dexamethasone with, or prior, to the first dose of antibiotics in cases of suspected bacterial meningitis?
6. What drugs are most commonly used in renal disease to bind phosphate in order to prevent hyperphosphatemia?
7. What is the classic presentation of a patient with aspirin overdose?
8. What is the antidote to the following toxin?

Salicylates	
β -blockers (or verapamil)	
Digoxin	
Iron	
Copper	
t-PA, streptokinase	

Doctors In Training: USMLE Step 2 CK Review – Day 5 Review Quiz

1. What is the empiric treatment for a brain abscess? (SU2 p173)
2. What is the treatment for cluster headaches? (SU2 p174)
3. In which patient populations are –triptan drugs contraindicated?
4. What side effects can arise from theophylline overdose?

5. What is the following heart disease?

ST segment elevation in leads corresponding to the perfusion of multiple arteries	
Hypotension + distant heart sounds + distended neck veins	
Cardiac cath shows equal pressures in all heart chambers	
Chest pain that lessens when the patient leans forward	

6. Which blood pressure medications should be avoided in patients with ischemic stroke or subarachnoid hemorrhage because of the increase in intracranial pressure associated with them?
7. What is the antidote to the following toxin?

Antimuscarinic, anticholinergic agents	
Benzodiazepines	
Tricyclic Antidepressants	
Warfarin	
Methanol, ethylene glycol (antifreeze)	
Arsenic	

8. What is the Parkland burn formula?
9. What are the symptoms of neuroleptic malignant syndrome? (SU2 p286)
10. What is the treatment for neuroleptic malignant syndrome? (SU2 p286)

11. Compare PTH, alkaline phosphatase, serum calcium, and serum phosphate levels in patients with the following diseases: (SU2 p116)

	Serum Ca	Serum Phos	Alk Phos	PTH
Paget's Disease				
Osteomalacia / Rickets				
Chronic renal failure				
Osteoporosis				
Osteopetrosis				
Primary hyperparathyroidism				
Hypoparathyroidism				
Pseudohypoparathyroidism				

Doctors In Training: USMLE Step 2 CK Review – Day 6 Review Quiz

1. What is the treatment for cluster headaches? (SU2 p174)
2. Which class of antihypertensive is contraindicated in the following patients?
 - COPD
 - Bilateral renal artery stenosis
 - Pregnancy
 - Advanced renal failure
 - Gout
3. What heart sounds are considered benign when there is no evidence of disease?
4. What heart defect is associated with the following disorder?
 - Chromosome 22q11 deletions
 - Down syndrome
 - Congenital rubella
 - Turner's syndrome
 - Marfan's syndrome
5. What is the next step once a brain tumor has been identified on CT or MRI of the head? (SU2 p187)
6. What are the W's of post-op fever?
7. What medication combination is used in the treatment of TB meningitis? (SU2 p170)
8. What are the characteristic features of a patient presenting with pericarditis?

9. What is the antidote to the following toxin?

Acetaminophen	
Lead	
Cyanide	
Methemoglobin	
Opioids	

10. What are the indications for surgical parathyroidectomy?

Doctors In Training: USMLE Step 2 CK Review – Day 7 Review Quiz

1. A 50-year-old male with a 25 pack/year history presents with his second bout of pneumonia in the last 6 months. CXR reveals a lobar consolidation in the same location as the previous pneumonia. What is the next step in the management of this patient? →
2. What imaging study is used to diagnose a DVT?
3. What radiographic study is used to diagnose injury to the urethra?
4. What are the symptoms of a basilar skull fracture?
5. What is the drug of choice for trigeminal neuralgia? (SU2 p174)
6. What is the treatment for normal pressure hydrocephalus? (SU2 p179) What is the treatment for pseudotumor cerebri? (Neuro handout)
7. What is the treatment for Guillain-Barré syndrome? (SU2 p185)
8. How do you distinguish the Somogyi effect from the Dawn phenomenon?
9. What type of immunodeficiency increases the risk of anaphylactic transfusion reaction? (SU2 p162)
10. Which antihypertensive class is first-line in patients with the following problems:
 - No comorbidities
 - Diabetes
 - Heart failure (multiple)
 - BPH
 - Left ventricular hypertrophy
 - Hyperthyroid
 - Osteoporosis
 - Benign essential tremor
 - Post-menopausal female
 - Migraines
11. What are the HACEK bacteria? (SU2 p22)
12. At what point do patients with chronic COPD qualify for home O₂?
13. What is the initial treatment of a localized non-small cell lung cancer? (SU2 p45)

Doctors In Training: USMLE Step 2 CK Review – Day 8 Review Quiz

1. What is the treatment for acute mesenteric ischemia?
2. When is rifampin prophylaxis indicated in cases of bacterial meningitis? (SU2 p169)
3. What is the treatment for acromegaly?
4. What infectious agent most likely corresponds to the following statement?
 - Food poisoning as a result of mayonnaise sitting-out too long
 - Rice-water stools
 - Diarrhea transmitted from pet feces
 - Food poisoning resulting from reheated rice (Chinese food)
 - Most common cause of “travelers’ diarrhea”
 - Diarrhea after a course of antibiotics
 - Diarrhea + recent ingestion of water from a stream
 - Mild intestinal infection that can become neurocysticercosis
 - Food poisoning from undercooked hamburger
 - Diarrhea from seafood
 - Bloody diarrhea from poultry
 - Diarrhea + pink-eye
 - Bloody diarrhea → liver abscess
 - Diarrhea in an AIDS patient
 - Dehydrated child with greenish diarrhea in winter months
5. What are the most common causes of acute pancreatitis? (SU2 p78)
6. A COPD patient comes to the ER tachycardia and hypotension. During the evaluation he begins to have seizures. What is the most likely etiology?
7. What is the ACLS treatment for asystole? (SU2 p155)
8. Which antihypertensive drug fits the following side effect?
 - First dose orthostatic hypotension
 - Hypertrichosis
 - Dry mouth, sedation, severe rebound HTN
 - Bradycardia, impotence, asthma exacerbation
 - Reflex tachycardia
 - Cough
 - Avoid in patients with sulfa allergy
 - Angioedema
 - Development of drug-induced lupus
 - Cyanide toxicity
9. What is the treatment for febrile seizures? (SU2 p189)
10. What is the empiric treatment for pneumonia in a 2-month-old? In a 2-year-old?

Doctors In Training: USMLE Step 2 CK Review – Day 9 Review Quiz

1. What are the classic findings of Henoch-Schönlein purpura (HSP)?
2. What are Ranson's criteria in determining the prognosis in patients with acute pancreatitis? (SU2 p79)

3. What is the treatment for the following diarrheal illness?

<i>Entamoeba histolytica</i>	
<i>Giardia lamblia</i>	
<i>Salmonella</i>	
<i>Shigella</i>	
<i>Campylobacter</i>	

4. Which type of lung cancer is associated with the following paraneoplastic syndrome:
 - Elevated ACTH → glucocorticoid excess → Cushing's syndrome
 - Elevated PTH related peptide → hypercalcemia
 - Elevated ADH → SIADH → hyponatremia
 - Antibodies to presynaptic Ca^{2+} channels → Lambert-Eaton syndrome
5. Which type of vasculitis fits the following description:
 - Weak pulses in upper extremities
 - Necrotizing granulomas of lung and necrotizing glomerulonephritis
 - Necrotizing immune complex inflammation of visceral/renal vessels
 - Young male smokers
 - Young Asian women
 - Young asthmatics
 - Infants and young children; involved coronary arteries
 - Most common vasculitis
 - Associated with hepatitis B infection
 - Occlusion of ophthalmic artery can lead to blindness
 - Perforation of nasal septum
 - Unilateral headache, jaw claudication
6. Which lipid-lowering agent matches the following description:
 - SE: facial flushing
 - SE: elevated LFTs, myositis
 - SE: GI discomfort, bad taste
 - Best effect on HDL
 - Best effect on triglycerides/VLDL
 - Best effect on LDL/cholesterol
 - Binds *C. diff.* toxin
7. What drugs are known for causing elevated prolactin levels? (SU2 p117)

Doctors In Training: USMLE Step 2 CK Review – Day 10 Review Quiz

1. What is the most likely cause of aortic stenosis in a 50-year-old patient?
2. What is the most common cause of aortic regurgitation in a 70-year-old patient?
3. What is the classic (but rare) EKG finding in pulmonary embolism?
4. What is the most likely cause of secondary hypertension given the following findings:

Hypertension measures in arms but low BP in LE	
Proteinuria	
Hypokalemia	
Tachycardia, diarrhea, heat intolerance	
Hyperkalemia	
Episodic sweating, tachycardia	

5. An elderly female with a history of cholelithiasis presents with a 5-day history of vague, recurrent abdominal pain and vomiting. What diagnosis do you immediately suspect?
6. A patient presents to the ER with a very painful irreducible inguinal mass. What is the next step in the management of this patient?
7. A 4-month-old child presents with nonbilious vomiting despite changing formulas from milk-based to soy-based. What is the most likely etiology?
8. A patient presents to clinic for follow-up and is found to have a BP of 150/85. You note in the chart that during his last visit 1 month ago, his BP was 145/90. What is the next step in the management of this patient?
9. Which glomerular disease would you suspect most in a patient with the following findings:
 - Most common nephrotic syndrome in children
 - IF: granular pattern of immune complex deposition; LM: hypercellular glomeruli
 - IF: linear pattern of immune complex deposition
 - Kimmelstiel-Wilson lesions (nodular glomerulosclerosis)
 - Most common nephrotic syndrome in adults
 - EM: loss of epithelial foot processes
 - Nephrotic syndrome a/w hepatitis B
 - Nephrotic syndrome a/w HIV
 - Anti-GBM antibodies, hematuria, hemoptysis
 - EM: subendothelial humps and tram-track appearance
 - Nephritis, deafness, cataracts
 - LM: crescent formation in the glomeruli
 - LM: segmental sclerosis and hyalinosis
 - Purpura on back of arms and legs, abdominal pain, IgA nephropathy
 - Positive ANCA
 - Anti-dsDNA antibodies

Doctors In Training: USMLE Step 2 CK Review – Day 11 Review Quiz

1. What lab changes would you see in the following diseases? (very HY!)

Disorder	Platelet Count	Bleeding Time	PT	PTT
HUS or TTP				
Hemophilia A or B				
Von Willebrand's disease				
DIC				
Warfarin use				
End stage liver disease				
Aspirin use				

2. Compare the serum iron, ferritin, and transferrin levels in iron deficiency anemia to anemia of chronic disease.
3. What medications are necessary in patients with end stage renal disease? (SU2 p96)
4. What is the treatment for hyperkalemia?
5. What are 4 potassium sparing diuretics? (SU2 p90)

6. What findings do the following signs describe, and with what diseases are they associated?

Sign	Disease	Description
		Deep palpation of RUQ → arrest of inspiration due to pain
		Charcot's triad (fever, jaundice, RUQ pain), hypotension, altered mental status
		RLQ pain on passive extension of the hip
		RLQ pain on passive internal rotation of the flexed hip
		LUQ pain and referred left shoulder pain
		Ecchymosis of the skin overlying the flank
		Ecchymosis of the skin overlying the periumbilical area

7. What X-ray finding is indicative of croup? What X-ray finding is indicative of epiglottitis? (SU2 p53)
8. What is the treatment for RSV bronchiolitis? (SU2 p54)
9. What is Beck's triad? (SU2 p20)
10. What is the typical initial post-op fever workup? (SU2 p164)

Doctors In Training: USMLE Step 2 CK Review – Day 12 Review Quiz

1. What are the indications for a carotid endarterectomy?
2. What type of leukemia matches the following description?
 - Most common neoplasm in children (peak age 3-4 yrs)
 - Most common leukemia in adults (average age of onset 50yrs)
 - Philadelphia chromosome is almost always seen
 - Smudge cells on peripheral smear
 - Peripheral blasts are PAS+ and TdT+
 - Peripheral blasts are PAS-, myeloperoxidase+ and have Auer rods
 - Pancytopenia in a Down syndrome patient
3. What is the next step in the management of testicular torsion confirmed with US?
4. What are the causes of hypovolemic hyponatremia?
5. Fever + rash + elevated creatinine + eosinophilia → What is the diagnosis?
6. What distinguishes primary biliary cirrhosis from primary sclerosing cholangitis? (SU2 p84)
7. What is the treatment for Whipple disease? (SU2 p68)
8. What type of current or past Hepatitis B exposure is present in the each of the following scenarios? (SU2 p60)

	Hep BsAg	Hep BsAb	Hep BcAb
	Negative	Negative	Positive
	Positive	Negative	Positive
	Negative	Positive	Negative
	Negative	Positive	Positive
9. What is the differential diagnosis of ground-glass infiltrates on CXR?
10. What medication is used to close a PDA?
11. What complications can arise from electrical burns?
12. What eye abnormality is seen with a lesion to the oculomotor nerve (CN III)?
13. What are the differing presentations of Alzheimer's dementia, Pick's disease, and Lewy body dementia? (SU2 p183)

Doctors In Training: USMLE Step 2 CK Review – Day 13 Review Quiz

1. Which blood cell pathology matches the following high-yield description?

Associated with Epstein-Barr virus (in Africa)	
Reed-Sternberg cell, cervical lymphadenopathy, night sweats	
Bence-Jones proteins, osteolytic lesions, high calcium	
Translocation 14;18	
Most common lymphoma in the US	
Translocation 8;14	
Translocation 9;22	
Most common form of Hodgkin's lymphoma	
"Starry-sky pattern" due to phagocytosis of apoptotic tumor cells	
High hematocrit/hemoglobin, pruritus (especially after hot bath or shower), burning pain in hands or feet	
Blood smear (hair-like projections), splenomegaly	

2. What are the classic features that distinguish orbital cellulitis from periorbital cellulitis?
3. In which patients is bupropion contraindicated? (SU2 p281)
4. What is the treatment for serotonin syndrome?
5. How is benign paroxysmal positional vertigo diagnosed? How is it treated? (SU2 p195)
6. What is the treatment for acute angle-closure glaucoma? (SU2 p193)

7. What is the antidote to the following toxin?

Anticholinesterases, organophosphates	
Mercury	
Carbon monoxide (SU p151)	
Heparin	
Isoniazid	

8. What type of heart murmur fits the following description?

- Diastolic murmur heard best in left lower sternum that increases with inspiration
- Late diastolic murmur with an opening snap (no change with inspiration)
- Systolic murmur heard best in the second right interspace
- Systolic murmur heard best in the second left interspace
- Late systolic murmur best heard at the apex
- Diastolic murmur with a widened pulse pressure
- Holosystolic murmur that is louder with inspiration at the left lower sternum
- Holosystolic murmur heard at the apex and radiates to the axilla

Doctors In Training: USMLE Step 2 CK Review – Day 14 Review Quiz

1. What is the difference between the following disorders?

Schizotypal	
Schizophrenia	
Schizoaffective	
Schizoid	
Schizophreniform	
Brief psychotic disorder	

2. What is the differential diagnosis for the dislocation of the lens of the eye?

3. What is the treatment for macular degeneration? What is the treatment for retinal detachment? (SU2 p194)

4. Which childhood psychiatric disorder matches the following statement?

Females only, loss of previously acquired language and motor skills	
Impairments in social interactions, communications, play, repetitive behaviors	
Impairment in social interaction (but not avoidance), no language delay	
Stereotyped hand movements	
Ignoring the basic rights of others	
Characterized by hostility, annoyance, vindictiveness, disobedience, and resentfulness	
Multiple motor and vocal tics	
Impulsive and inattentive	
7 year old that avoids going to school to stay home with parent	

5. What are the causes of fever in the post-op period? (SU2 p165)

6. What is the next step in the evaluation of the following patients?

Pelvic fracture + DPL shows blood in the pelvis	
Pelvic fracture + DPL shows urine in the pelvis	
Pelvic fracture + DPL shows nothing + hemodynamic instability	
Blunt abdominal trauma + unstable vital signs + FAST shows fluid in pelvis	
Blunt abdominal trauma + unstable vital signs + FAST shows no fluid in pelvis	
Blunt abdominal trauma + unstable vital signs + FAST inconclusive	
Blunt abdominal trauma + stable vital signs	
Abdominal stab wound + hypotensive or signs of peritonitis	

7. What are the diagnostic criteria (Jones criteria) for rheumatic fever?

Doctors In Training: USMLE Step 2 CK Review – Day 15 Review Quiz

1. Why is thiamine given in a glucose infusion to alcoholics with hypoglycemia?
2. What are the symptoms of a lacunar stroke? (SU2 p176)
3. What medications and interventions are used in the treatment of cerebral palsy to alleviate contractures and improve function? (SU2 p191)
4. What are the 2 most common primary brain tumors in adults? What are the 3 most common primary brain tumors in children? (SU2 p185)
5. What is the ACLS treatment for ventricular fibrillation?
6. Which vasopressor matches the following statement? (SU2 p162)
 - Theoretically causes renal vasodilation
 - High doses optimize the α -1 vasoconstriction
 - ADH analogue
 - Best choice for anaphylactic shock
 - Best choice for septic shock
 - Best choice for cardiogenic shock
 - Causes vasoconstriction but with bradycardia
7. What is the next step in the evaluation of penetrating injuries to the different zones of the neck? (SU2 p157)
8. How can the flushing reaction of niacin be prevented?
9. What EKG finding is seen in patients with Wolff-Parkinson-White syndrome? What causes WPW? (SU2 p11)
10. How is the treatment of SVT due to WPW different from that of other causes of SVT? (SU2 p11)
11. What is the most sensitive and specific lab test for the diagnosis of chronic pancreatitis? (SU2 p78)
12. What supplements should be given to women on anticonvulsants during pregnancy?
13. What is the next step in the management of an AGUS pap smear?

Quick Review 1

1. Which spinal tract conveys the following information? (FA p387)
 - Touch, vibration, and pressure sensation
 - Voluntary motor command from motor cortex to body
 - Voluntary motor command from motor cortex to head/neck
 - Pain and temperature sensation
 - Important for postural adjustments and head movements
2. Which cranial nerve is responsible for the following actions? (FA p394)(SU2 p172)
 - Eyelid opening
 - Taste from anterior 2/3 of tongue
 - Head turning
 - Tongue movement
 - Muscles of mastication
 - Balance
 - Monitoring carotid body and sinus chemo- and baroreceptors
3. What are the two most common locations of aneurysms in the Circle of Willis? (SU2 p170)
4. A lesion to which area of the brain is responsible for the following clinical scenario? (FA 381)
 - Contralateral hemiballismus
 - Eyes look toward the side of the lesion
 - Eyes look away from the side of the lesion
 - Paralysis of upward gaze
 - Hemispatial neglect syndrome
 - Coma
 - Poor repetition
 - Poor comprehension
 - Poor vocal expression
 - Resting tremor
 - Intention tremor
 - Hyperorality, hypersexuality, disinhibited behavior
 - Personality changes
 - Dysarthria
 - Agraphia and acalculia
5. Where does each of the following spinal tracts decussate/cross over? (FA p388)(SU2 p171)
 - Dorsal columns
 - Lateral corticospinal
 - Spinothalamic tract

Quick Review 2

1. An infant is brought to the ER. The parents say that over the last day the infant has developed a fever, refused to eat, vomited, and is lethargic. The physical exam reveals petechiae and confirms the fever. WBC is elevated, and CSF results show a decreased glucose and increased neutrophils. On which medications should this patient be started?
2. What other drug should be given just before or along with the first dose of antibiotics in a patient suspected of having bacterial meningitis?
3. Fill in the table of CSF findings in cases of meningitis caused by different types of pathogens.

	Pressure	WBCs	Glucose	Protein
Healthy				
Bacterial				
Viral				
TB/fungal				

4. When should a CT scan be performed as a next step instead of an LP in a patient suspected of having meningitis?
5. You suspect an AIDS patient may have meningitis. What specific CSF preparation should be ordered in addition to the usual CSF analysis, gram stain, and culture?

Quick Review 3

1. How should you treat a patient that has been bitten by an animal suspected of having rabies, or an animal that cannot be observed for 10 days?
2. A patient is brought into the ER with progressive muscle weakness, intact sensation, headache, vomiting, neck pain, and fever. CSF analysis shows increased lymphocytes and normal glucose and protein. What life-threatening complication can result in this disease process?
3. What other term should you remember when considering Reye's syndrome?
4. A patient is admitted to the hospital with the presumptive diagnosis of viral meningitis. An MRI of the head shows lesions within the right temporal lobe. With which pathogen is this pattern most consistent?
5. A patient is recovering in the ICU after suffering a subdural hematoma that occurred because of a motor vehicle collision. The neurosurgery team performed a craniotomy and drain placement to evacuate the clot. For the past few days the drainage in the collection bulb was serous. Now however, the drainage is thick and yellow. Along with this, the patient's neurological exam has deteriorated. What is the likely cause of this clinical picture?

Quick Review 4

1. A 25-year-old man is seen in the ER with a severe headache. He tells you that the headaches always occur at around the same time of day, and that the pain is localized around the right eye. On exam his pupils are unequal and his right eye is tearing. While he waits for a CT scan of the head, what treatment should he receive?
2. A 30-year-old female patient is in the office with a complaint of facial pain. She describes that whenever her face is lightly touched that she experiences incredible electricity-like pain. What is the first-line treatment for this condition?
3. What is the pattern of pain in a migraine? In a tension headache?
4. A 27-year-old man comes to the clinic because of a progressively worsening headache. He denies a prior history of headaches. He adds that this one was easy to ignore at first, but over the last few weeks has never let up and is increasing in severity. What should be next for this patient?
5. What are the demographic characteristics of a typical pseudotumor cerebri patient?
6. A patient with longstanding poorly-controlled diabetes has tension headaches. What should you check before recommending pharmacologic treatment?

Quick Review 5

1. What are some major signs and symptoms of a TIA?
2. What anticoagulant would you give a patient who has just had their first TIA? What if the patient had another TIA while on ASA, what would you add?
3. What is the maximum amount of time a TIA may last?
4. What medication should be taken by a patient with atherosclerotic disease and risk of stroke?
5. What are the indications for carotid endarterectomy?
 - Asymptomatic men with narrowing of _____
 - Symptomatic men with narrowing of _____
 - Symptomatic women with narrowing of _____

Quick Review 6

1. A stroke, by definition, must last how long?
2. What thrombolytics are used in the treatment of an acute ischemic stroke?
3. What long-term medications should be started within 2-3 days of ischemic stroke?
4. What would be the most likely initial imaging for a patient suspected to have a stroke?
5. If the above study did not yield useful information, then what study might you get?
6. What is the next step in the management of a patient with ischemic stroke symptoms after a hemorrhagic stroke has been ruled out by noncontrast CT?
7. To maintain cerebral perfusion during the acute treatment of ischemic stroke, hypertension is generally not actively treated. At what blood pressure does treatment become necessary?
8. Hemorrhagic stroke requires the following treatment:

Quick Review 7

1. Are patients with parenchymal hemorrhage at an increased risk of seizures?
2. In which scenario is seizure prophylaxis with anticonvulsants recommended? Parenchymal hemorrhage or subarachnoid hemorrhage (SAH)?
3. How can AVMs and/or aneurysms be treated?
4. What diseases are associated with berry aneurysms?
5. What are 3 feared complications of parenchymal hemorrhage?
6. How may a patient describe the symptom of a subarachnoid hemorrhage SAH?
7. What 2 studies must be performed to rule out SAH?
8. How does one differentiate between SAH and a traumatic LP as a cause of bloody CSF?
9. What are the most common causes of an epidural hematoma and subdural hematoma?
10. Commonly a patient with an epidural hematoma will have the typical three part history of:
11. What is the definitive treatment of an epidural hematoma?
12. Where is the bleeding in a subdural hematoma? What shape would be expected on a head CT of a patient with a subdural hematoma?
13. If you suspect a patient has an epidural or subdural hematoma, should you perform a LP to confirm the diagnosis?
14. Describe the differences between Broca's aphasia and Wernicke's aphasia.
15. What are the three Ws that help diagnose normal pressure hydrocephalus?

Quick Review 8

1. What type of seizure fits each description?

Focal sensory or motor deficit with <u>NO</u> loss of consciousness	
Focal sensory or motor deficit, with impaired consciousness (commonly localized to <u>temporal lobe</u> on EEG)	
Involves <u>both hemispheres</u> of brain with a pattern of neuromuscular activation: tonic, clonic, tonic-clonic, myoclonic, or atonic. Loss of consciousness present with postictal period	
Characterized by a brief (few second) impairment of consciousness often with automatisms such as blinking or picking at shirt. No postictal period. <u>Spike and wave pattern</u> on EEG.	

2. What is status epilepticus?
3. What is the initial treatment for a patient in status epilepticus?
4. Once ABCs are under control, what is the treatment for a patient in status epilepticus?
5. What is the drug of choice for absence seizures?
6. A 45-year-old male is brought to the ER for new-onset status epilepticus. What are some of the components of the work-up to determine epilepsy?

Quick Review 9

1. What is the definitive treatment for persistent hydrocephalus?

2. How do you treat febrile seizures?

3. What neural tube defect matches the following description?

Incomplete closure of the dorsal vertebral arches, often at the lumbosacral junction	
Condition where the above defect is severe enough for there to be herniations of the meninges	
A more severe defect in which the spinal cord and meninges have herniated through	
Failure of closure of the anterior portion of the neural tube resulting in lack of forebrain, meninges, and parts of the skull	

4. What vitamin supplement is recommended to all sexually active women of childbearing age?

5. Which element of the quad/triple screen is abnormal in cases of neural tube defect?

6. Retinoblastoma can be detected from what part of the physical exam?

7. What is the next step when a retinoblastoma is suspected on PE?

8. What does cerebral palsy look like in a neonate?

9. What medications are often used to treat spasticity in cerebral palsy?

Quick Review 10

1. Depression has what neurotransmitter derangements?
2. List the symptoms of depression using the mnemonic SIG E CAPS:
3. Diagnosis of major depressive disorder (MDD) requires five of the above symptoms including depressed mood or anhedonia that must last how long?
4. What is the diagnosis of a patient that has periods of mood disturbances while psychotic as well as periods of psychosis with normal affect?
5. What medical conditions can cause severe depression?

Quick Review 11

1. How long must a patient expect to take an SSRI before they see improvement in their depression?
2. In TCA overdose, what can be used to correct the prolonged QRS interval and possible seizures?
3. Consumption of tyramine rich food in conjunction with MAOI treatment can result in what dangerous condition?
4. What foods are known to be rich in tyramine?
5. Trazodone's side effect of sedation makes it useful in what population of patients who have difficulty sleeping?
6. Which commonly used antidepressant should be avoided in patients at risk for seizure?
7. Which antidepressant is preferred in the treatment of depression with comorbid neuropathic pain?

Quick Review 12

1. What are three important distinctions of dysthymic disorder that distinguish it from MDD in making a diagnosis?
2. What is an important difference between a manic episode and hypomanic one?
3. What is the first line treatment for bipolar disorder?
4. Should a bipolar patient who is treated with a mood stabilizer and has concurrent depression be started on an antidepressant?
5. Bereavement and adjustment disorder share similar time tables in a patient's symptomatology. What are the key differences between them?
6. What should be used for the long-term management of panic attacks?
7. What is the antidote for benzodiazepine overdose?

Quick Review 13

1. Give examples of negative symptoms of schizophrenia.
2. By what mechanism do antipsychotic meds work?
3. What are some examples of extrapyramidal side effects?
4. What differentiates delusional disorder from schizophrenia or schizophreniform disorder?
5. What is the treatment of neuroleptic malignant syndrome?
6. What two side effects should a physician be aware of when using atypical antipsychotics?
7. What side effects would you expect to develop with administration of thioridazine?

Quick Review 14

1. What are the classic symptoms of Parkinson's?
2. What medication is most commonly used to treat Parkinson's?
3. Overall, what are the key symptoms in the initial presentation of Amyotrophic Lateral Sclerosis (ALS)?
4. What will an electromyogram reveal in ALS?
5. What medication is used to treat ALS?
6. What is the life expectancy once a patient is diagnosed with ALS?
7. What are the major symptoms of Huntington's disease?
8. What drugs may be used to treat Huntington's disease?

Quick Review 15

1. What drugs are helpful in treating Alzheimer's disease?
2. How does one differentiate between vascular dementia and Alzheimer's disease?
3. What are the differing presentations of Alzheimer's dementia, Pick's disease, and Lewy body dementia? (SU2 p183)
4. What are two symptoms that should clue you in to the diagnosis of multiple sclerosis (MS)?
5. What LP finding is diagnostic of MS?
6. What will the brain MRI in a MS patient show?
7. What important neuronal tract is the first to be compressed and compromised in the case of a syringomyelia?
8. What is the cause of and treatment for Lambert-Eaton syndrome?

Quick Review 16

1. How does Lambert-Eaton syndrome (LES) differ from Myasthenia Gravis (MG) on history and physical exam?
2. What are common symptoms of MG?
3. What test can help diagnosis MG?
4. How does edrophonium, neostigmine, pyridostigmine work in the treatment of MG?
5. How can Bell's palsy be easily differentiated from a motor cortex stroke?
6. What is a classic presentation of GBS?
7. How do you treat GBS?

Quick Review 17

1. What kind of tumor is the most common brain tumor?
2. Adult brain tumors are most often supra- or infra- tentorial?
3. What are the two most common primary brain tumors in adults? What are the 3 most common primary brain tumors in children? (SU2 p185)
4. What are important characteristics of Neurofibromatosis type 1?
5. Benzodiazepines increase which stage of sleep at the expense of what other stages of sleep?
6. What is the symptom that, when present, cinches the diagnosis narcolepsy?
7. A patient comes to your office complaining of feeling like "bugs are crawling on or in her legs". This sensation is relieved by movement of her legs but doing so interferes with her sleep. What are some treatment options for this patient?

Quick Review 18

1. What measurements make for a positive Tilt test?
2. What is the most common cause of syncope?
3. In an intact brainstem, the patient's eye should move in which direction with ice water infusion into an ear canal?
4. What are the elbows doing in decorticate posturing?
5. A patient is brought into the ER with loss of consciousness. What do you give before starting empiric glucose infusion?
6. Which cause of syncope is consistent with these historical items or physical exam findings?

While shaving	
While singing in a choir concert	
With a positive Tilt test after taking BP meds	
With prolonged loss of consciousness	
Preceded by palpitations	
In a Type I diabetic interrupted while eating	

Quick Review 19

1. How does damage to the right optic nerve present differently than damage to the right oculomotor nerve?
2. Does strabismus cause amblyopia or does amblyopia cause strabismus?
3. Does viral conjunctivitis form pus?
4. Compression or lesion of the sympathetic trunk will give a cluster of symptoms collectively known as Horner's syndrome. What are those symptoms? What is the classic cause?
5. A patient complains of watery, red, itchy eyes. On physical exam you notice evidence of mild pharyngitis. What might be the cause of her condition?
6. What important diseases are associated with uveitis?
7. On morning OB/GYN rounds, a very concerned new mother asks you about her 12-hour-old newborn's red eyes. What is the likely reason for the baby's red eyes?

Quick Review 20

1. During a yearly physical, a middle aged man jokes that he needs to buy some reading glasses because he is having difficulty reading fine print. He also notes that he has trouble driving at night and reading road signs. Though the patient may have some presbyopia, for what else should you examine him?
2. What is the pattern of vision loss in open angle glaucoma?
3. What is major exam finding in open angle glaucoma?
4. What are some major features of acute angle glaucoma?
5. Central to peripheral vision loss is characteristic of which type of eye pathology?
6. Retinal detachment occurs acutely and is painless, what does the patient experience?
7. What are some things that would be seen on funduscopic examination of a patient suspected of having retinal vessel occlusion?
8. What medication can be given for both glaucoma and altitude sickness?

Quick Review 21

1. What are the important characteristics seen on otoscopic exam of a patient with otitis media?
2. What is the next step in the evaluation of a patient with hearing loss, vertigo, and tinnitus after a physical exam in the clinic?
3. What are the potential complications of acute otitis media?
4. BPPV or benign paroxysmal positional vertigo is caused by what?
5. How do you fix BPPV?
6. In acute labyrinthitis, a patient will have symptoms of vertigo, nystagmus, and nausea and vomiting. What other important symptom with they have?
7. What are the symptoms in Ménière's disease?
8. What cranial nerve is associated in the deficit of an acoustic neuroma (schwannoma)?
9. What would you see in a patient on physical exam of a patient that has a cholesteatoma?

Quick Review 22

1. A patient comes to your office after becoming dissatisfied with her former physician. She explains to you why she has changed physicians. According to her, her former physician is the most evil creature with absolutely no redeeming qualities. She finishes her story and remarks that she "can tell you are so smart and will cure her of all things." What personality disorder might this patient have?
2. An answer of "yes" to 2 or more questions on the CAGE questionnaire indicates that a patient may have a problem with a substance such as alcohol. List the components of the CAGE questionnaire:
3. In which vitamins are alcoholics typically deficient?
4. What is the most successful treatment for alcoholism?
5. List the symptoms associated with the life threatening condition Delirium Tremens (DT).
6. HYQ: What is the drug of choice for alcohol withdrawal?

Quick Review 23

1. What drug should be avoided in the treatment of a patient in the ER with amphetamine intoxication?
2. What drugs can be used in the case of hypertension in a patient with cocaine or amphetamine intoxication?
3. What is the antidepressant used for help with nicotine addiction?
4. Opioids do what to the pupils?
5. What are the treatment options for a patient with PCP intoxication?

Quick Review 24

1. Which eating disorder, anorexia nervosa or bulimia, can be treated with SSRIs?
2. True or False. Anorexia and bulimia both involve vomiting/purging?
3. What serum lab abnormalities may be seen in a patient with prolonged excessive vomiting/purging?
4. Refeeding syndrome can result in the following:
5. What are two key differences between somatization disorder and conversion disorder?
6. Are pain medications helpful in the treatment of pain syndrome?
7. What is a major difference between factitious/Munchausen disorder and somatization/conversion disorder?

Quick Review 25

1. What are key features of delirium that differentiates it from dementia?
2. What is the difference between "sundowning" and delirium?
3. What is a common cause of delirium in the elderly?
4. What are the two most common causes of dementia and how do you differentiate between them when making a diagnosis?
5. A nurse pages you, saying that one of your elderly patients has been sleeping most of the two days he's been on the unit, but is very agitated and aggressive with the nurses while awake. She asks you to write for a benzodiazepine to sedate the patient. What do you propose instead and why?
6. What disease that causes dementia is also associated with visual hallucinations and frequent falls?
7. What disease that causes dementia is also associated with unpleasant behavioral and personality changes?
8. What lab work should be obtained in a patient with a new diagnosis of dementia to rule out secondary causes?

Quick Review 26

1. How is ADHD diagnosed?
2. What is the difference between conduct disorder and oppositional defiant disorder?
3. When treating a child suspected of having a learning disorder, what first must be investigated?
4. How is Asperger's syndrome different from autism?
5. How is childhood disintegrative disorder different than autism?

Quick Review 27

1. A concerned mother brings her 6-year-old son to see you. He has been complaining of nausea and has been vomiting. The mother says that she thinks he caught a stomach bug. What might the child have instead?
2. What must be kept in mind for a type 1 diabetic patient that plans to begin a strenuous exercise program?
3. Which type of insulin is used in continuous infusion insulin pumps and in treatment of DKA?
4. Describe the basic mechanism behind the Somogyi effect.
5. Describe the mechanism behind the Dawn Phenomenon.
6. How can you differentiate between the Somogyi effect and Dawn Phenomenon?

Quick Review 28

1. What skin finding can be a sign of have insulin resistance?
2. HHNK is similar in presentation to DKA but differs in what important ways?
3. You have a well-controlled DM II patient who needs a CT scan with IV contrast. What medication is this patient is likely on that must be temporarily held?

4. Match the diabetes drug with its mechanism of action:

↓ GI absorption of starch & disaccharides	
Stimulates insulin release	
↓ hepatic gluconeogenesis	
↑ tissue glucose uptake and improves insulin sensitivity	
Mimics the action of GLP-1: ↓ glucagon, ↑ insulin, delays gastric emptying	
Inhibits DPP-IV → ↓ glucagon, ↑ insulin, delays gastric emptying	
An amylin analog which ↓ glucagon and delays gastric emptying	

5. Which of the above medications may cause hypoglycemia?
6. Which diabetic medications should be avoided in patients with heart failure?

Quick Review 29

1. In a patient being treated for DKA, what is used to determine when to shut off the insulin infusion?
2. Which electrolyte should be given at the beginning of treatment for DKA because of its propensity to drop with insulin infusion in these patients?
3. What are Kussmaul respirations, and what is their physiologic purpose?
4. What is the best way to avoid diabetic retinopathy, nephropathy, and neuropathy?
5. How can you track diabetic nephropathy in a diabetic patient?
6. What is the pattern and type of sensation lost in diabetic neuropathy?
7. The surgical intern is called to the bedside of a post-surgical male diabetic patient because of shortness of breath. The patient denies chest pain, but cardiac enzymes and an EKG are ordered anyway which reveal an evolving MI. Why doesn't the diabetic patient have more symptoms indicative of his MI?

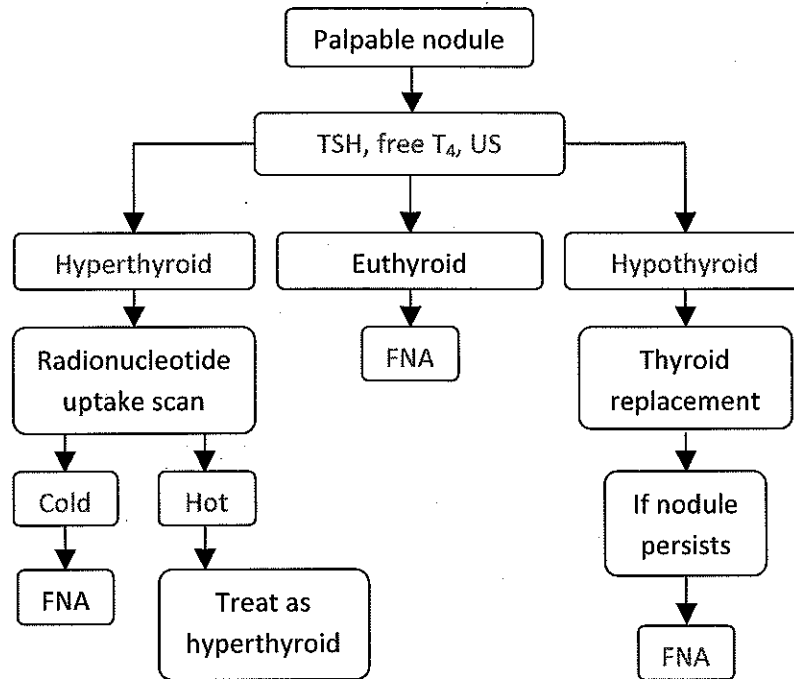
Quick Review 30

1. Why must beta blockers be used with caution in diabetic patients?
2. A patient came into the ER with altered mental status and you had to administer a glucose infusion empirically because there was not a way to determine the blood glucose in a timely fashion. Later it was discovered that the patient was in DKA and subsequently treated inappropriately. In this case was your action careless and harmful?
3. What is used to determine whether a patient's hypoglycemia is due to too much insulin production by the body or from too much exogenous insulin administration?
4. What can cause total T_4 levels to increase despite free T_4 remaining normal?
5. What is the pathophysiology of Grave's disease?
6. A woman comes to your office with a complaint of neck pain. On exam she is tender and mildly swollen in the thyroid region of the neck. She also reports having some mild anxiety, and at times her heart seems to race. How do you treat this patient's disease?
7. How can Grave's disease be cured?
8. Toxic multinodular goiter and Plummer's disease are similar in presentation and treatment to Grave's disease. How are they different?
9. Hypothyroidism can present as what common symptom in a patient?
10. Which antibodies are used to help in the diagnosis of Hashimoto's thyroiditis?
11. A woman comes to your office with a complaint of a neck mass. On exam she is not tender but mildly swollen in the thyroid region of the neck. She also reports having some mild anxiety and at times her heart seems to race. How do you treat this patient's disease?
12. What is the most common form of thyroid carcinoma?

Quick Review 30 (continued)

13. What are two common complications of a thyroidectomy?

14. What is the work up for a thyroid nodule?



Quick Review 31

1. What is a nickname for PTH that aids in remembering its effect on serum phosphate?
2. How will vitamin D deficiency affect the levels of Ca^{2+} , PTH, and phosphate?
3. What are the common causes of primary hyperparathyroidism?
4. Why might PTH be elevated in renal disease?
5. What happens to phosphate in patients with hyperparathyroidism caused by renal disease?
6. What is the disease associated with shortened 4th and 5th digits on the hand, and what is the derangement?
7. Determine whether the given substance will be increased or decreased as a result of each disease:

Disease	PTH	Ca^{++}	Phosphate
Pseudohypoparathyroidism			
Primary hyperparathyroidism			
Vitamin D deficiency			
Renal disease-induced hyperparathyroidism			
Hypoparathyroidism			

Quick Review 32

1. Which two hormones levels are decreased in response to excess prolactin?
2. What common medications can cause hyperprolactinemia?
3. What is the visual field deficit classically associated with prolactinoma?
4. What are the first-line drugs used to treat prolactinomas?
5. What substance is used in screening for acromegaly? What study is used to confirm the diagnosis?
6. What complications can result from acromegaly?
7. What is Sheehan syndrome?

Quick Review 33

1. What are some causes of Cushing's syndrome?
2. What can a high dose of dexamethasone suppress? What can it not suppress?
3. What are the electrolyte abnormalities found in hyperaldosteronism?
4. A patient with a high plasma aldosterone concentration and low plasma renin activity ratio has what condition? Which medication could be used to treat this condition until definitive treatment can be undertaken?
5. Increased skin pigmentation is seen in patients with which kind of adrenal insufficiency?
6. Which steroid is used to replace mineralocorticoid deficiency?
7. A patient on chronic steroid therapy contracts pneumonia that requires admission into the ICU. What should the admitting physician make sure to do with the patient's medications and why?

Quick Review 34

1. What is the likely condition of a female infant with virilization of the genitalia and hypotension?
2. What serum lab abnormality would you see in 17- α hydroxylase deficiency and in 21- α hydroxylase deficiency?
3. A 23-year-old woman presents with complaints of episodic anxiety, palpitations, and sweating. She managed to measure her blood pressure during one of the episodes which revealed 165/103, a large increase over her normal 118/77. What tests could be ordered to aid in diagnosis of her condition?
4. What is the medical management of the above patient's condition prior to her having the necessary surgery for a definitive cure?
5. A patient with acromegaly is found to have elevated Ca^{++} on a blood draw during a work up of his peptic ulcer. What is the diagnosis of this patient?
6. What tumors are associated with MEN IIa?

Quick Review 35

1. A mine worker is brought into the ER after an explosion occurred; examination of the burns, which is difficult secondary to pain at the site, reveals extension into the dermis and blisters. To what degree is this burn classified?
2. The burns of the above patient cover the anterior surfaces of both arms. What is the surface area of the burn?
3. What are the complications to watch for in a patient that has suffered an electrical burn?
4. What is done in an effort to prevent renal failure in electrical burn patients?
5. A near-drowning episode in which type of water can result in pulmonary edema?
6. Where is an aspirated object such as a penny most likely to end up?
7. What is the next step in the management of a patient that is aspirating on an object that cannot be dislodged?

Quick Review 36

1. What is an underlying problem with hyperthermia that must be corrected?
2. An immigrant worker comes into the ER after being run over by a piece of construction equipment. His wound is open with dirt and debris ground in. He speaks no English, so no medical history can be obtained. What is the proper tetanus regimen for this man?
3. Should a dog bite wound to the arm be left open or sutured closed after appropriate washout?
4. What type of bite is associated with pancreatitis?
5. Which antibiotics are given oral for 10-14 days in mammal bite cases?
6. What medications should be given to a patient with muscle spasms, abdominal stiffness, altered mental status, and tachycardia due to a spider bite?

Quick Review 37

1. What is the minimum lethal dose of acetaminophen?
2. What is given to treat acetaminophen overdose?
3. What cardiac medications are safe to treat the tachycardia and hypertension in cocaine overdose?
4. What is the antidote to benzodiazepine overdose?
5. Which part of the ABCs is different in a patient with cyanide poisoning, and why?

Quick Review 38

1. What is used to reverse opioid overdose?
2. What is given in a patient with serious bleeding with an elevated INR?
3. What is the action of pralidoxime in patients with organophosphate toxicity?
4. Organophosphate toxicity is essentially the opposite of toxicity of what?
5. What is used to treat a toddler whose symptoms are fatigue, lethargy, anemia with basophilic stippling, and wrist drop. What is the diagnosis, and what is the treatment? What would be the treatment for the child's parents, if they had the same symptoms?
6. Why is it important to get an arterial blood gas (ABG) in a patient suspected of carbon monoxide exposure?
7. Which type of overdose is associated with metabolic acidosis and retinal damage that can lead to blindness?
8. What is the treatment for theophylline overdose?

Quick Review 39

1. What is the maximum number of epinephrine doses that can be given when treating cardiac arrest?
2. In which ALCS protocol might your first drug be a single dose of vasopressin?
3. What are the 7 Hs that cause PEA?
4. What are the "T" causes of PEA?
5. In which types of cardiac arrest should shock (electrical cardioversion) not be performed?
6. What piece of medical history should be obtained in deciding how to treat atrial fibrillation?

Quick Review 40

1. Which coronary artery is the most common site of occlusion?
2. Which ECG leads correspond to occlusion of the LAD?
3. In which phase of the cardiac cycle do coronary arteries fill with blood?
4. What is one equation used to find mean arterial pressure (MAP)?
5. What is the electrophysiological reason that a QRS complex would become widened?

Quick Review 41

1. Stress testing is done as a screening test. If angina or ischemia occurs with these tests, what test should follow?
2. At what age should screening for hyperlipidemia begin?
3. At what total cholesterol value should treatment begin in a patient with no risk factors?
4. What are the two most common adverse effects of statin use, and what labs would reveal these effects?
5. What lipid lowering drugs should not be combined?
6. What is the first-line medication to raise HDL?

Quick Review 42

1. What medication is used to treat Prinzmetal's angina?
2. Which patients are more likely to have atypical angina (or no angina) during an episode of cardiac ischemia?
3. How does nitroglycerin work acutely in a cardiac ischemic episode?
4. Why should relief of chest pain with nitroglycerin administration not be used as a diagnostic test for whether or not the chest pain is cardiac in nature?

Quick Review 43

1. What is a helpful mnemonic to remember some of the drugs used to treat acute angina in the ER?
2. Which vein is typically used in CABG?
3. Which medication types have a proven reduction in mortality following MI?
4. In what time frame do thrombolytics need to be given in a MI? How does this differ from the time frame in which they need to be given for a stroke?
5. In addition to ST and T wave changes and new Q wave, what other EKG findings may indicate MI?
6. What are specific labs ordered in patients suspected of having an MI?
7. What electrolytes are important to optimize to prevent arrhythmias in patients suffering from an MI?
8. When is a post MI patient at greatest risk for ventricular wall rupture?
9. A patient that you treated 3 weeks ago for MI is now found to have fever, pericarditis, and an elevated ESR. What is the name of this syndrome?

10. Which coronary arteries match the infarct patterns and EKG changes below?

Infarct area	Artery involved	EKG changes
Anterior wall		
	Septal branch (distal branch of LAD)	
		AVL, V5, V6
		II, III, AVF

11. What is the time frame of elevation and decline of Troponin I in an MI?
12. What medications are different in the treatment of a NSTEMI compared to a STEMI?

Quick Review 44

1. Which heart blocks need a pacemaker?
2. What medications are used to treat Wolff-Parkinson-White syndrome?
3. What can be given as treatment for β -blocker- or verapamil-induced bradycardia?
4. Which endocrine disorder can cause atrial fibrillation?
5. A patient is in the hospital and begins to have atrial fibrillation with RVR (rapid ventricular rate). This patient has had chronic atrial fib previously. What study has to be performed before the patient can be cardioverted?
6. What medications can be used in the meantime in the above patient?
7. Why must heparin be started in conjunction with warfarin?
8. Type of heart block in which the PR interval is progressively lengthened with each beat until a ventricular beat is dropped:
9. What is the drug of choice for acute-onset atrial fibrillation with rapid ventricular rate in a patient with Wolf-Parkinson-White?
10. What type of heart block is described by the following statements?

PR interval prolonged more than 0.2s (5 small boxes)	
No relationship between P waves and QRS	
PR interval becomes progressively longer until a beat is blocked	
PR interval fixed, but with occasional blocked beats	

Quick Review 45

1. What is ventricular tachycardia? Why is it concerning?
2. Which drug is avoided in Wolff-Parkinson-White but used in all other forms of paroxysmal supraventricular tachycardia?
3. What ECG Finding may indicate a very early stage of HF?
4. What's a normal range for the ejection fraction?
5. Which type of cardiac dysfunction can be thought of as the ventricle being a floppy, wet bag trying to squeeze blood? (decreased contractility)
6. Which type of cardiac dysfunction is like trying to force 1.5 L of Coke into a 1L bottle? (decreased ventricular compliance)
7. What medications are important in the outpatient treatment of chronic congestive heart failure?
8. What is the acute treatment for exacerbations of congestive heart failure?
9. When should a physician consider a biventricular pacemaker in a CHF patient?
10. HYQ: Which antiarrhythmic should be avoided in patients with preexisting lung disease?
11. When should PVC's be concerning?

Quick Review 46

1. In what condition will having the patient perform the Valsalva maneuver while auscultating the heart will increase the murmur? In what condition will it decrease the murmur?
2. What four murmurs are possible during diastole?
3. A 50-year-old man comes to the ER with symptoms of CHF. He is a known alcoholic and his exam is notable for having both systolic and diastolic murmurs. What is the true diagnosis of this man's disease?
4. A 66-year-old man presents to the ER with complaint of chest pain, especially with the action of breathing. Four weeks ago he had an MI, and now he is afraid he is having another one. The patient seems most comfortable sitting up and leaning forward. Although proper work up for acute MI must be performed, what is the likely cause of his pain?
5. What will cardiac catheterization show in a patient with chronic constrictive pericarditis?
6. What is Beck's triad, and what are the EKG findings with cardiac tamponade?
7. Which heart murmur is associated with syncopal episodes?
8. Which valve is most frequently damaged in rheumatic heart disease?

Quick Review 47

1. A patient involved in a motorcycle accident arrives in the ER on a stretcher with his neck in a hard cervical collar. His left leg and foot are mangled. His GCS is 15 and in between his moans of pain he asks to have the uncomfortable collar removed because his neck isn't bothering him. Can you remove the collar?
2. A patient presents to the ER after being involved in a motor vehicle collision (MVC). He doesn't open his eyes or make any sounds, but he does withdraw to painful stimuli. What is his Glasgow coma score (GCS)? What needs to be done?
3. Another MVC victim arrives to the ER. He is able to carry on a conversation and even comment on how nice one of the nurses' hair looks. He is able to move all of his extremities on command, and he has a significant periorbital ecchymosis and surrounding superficial scrapes. What is his GCS? What radiological study does he definitely need?
4. Yet another motor vehicle collision victim presents to the ER with a profusely bleeding wound to the leg. She is complaining loudly about her pain. What is your next step in assessment?
5. What imaging is commonly utilized in an MVC patient with no neck pain and low risk of cervical injury in order to rule out cervical fracture?
6. What imaging is required to definitively rule out a C-spine fracture?

Quick Review 48

1. What is the next step in managing an expanding hematoma in a neck?
2. A trauma patient arrives in the ER after being the driver in a high speed collision. Airway is intact, but on inspection of the chest, a portion of his chest wall seems to move in the opposite direction than it should when he breathes. What is the problem here?
3. While you were observing the odd chest movements above, the mental status and blood pressure of the patient plummeted. Quickly you listen for chest sounds, which are absent on the anterior right side. This area is hyper-resonant to percussion, and there may be some deviation of the trachea to the left. What now?
4. A psychiatric patient stabbed himself in the umbilicus with a knife. The patient is tachycardic and hypotensive. The wound appears to penetrate the abdominal wall. What is the next step in management?
5. A MVC victim has evidence of significant blunt trauma. On the way to the CT scanner, his blood pressure plummets. What is the next step?

Quick Review 49

1. What is the next step in the evaluation of a male trauma patient with blood at his urethral meatus and a high riding prostate? What is contraindicated?
2. What should be done to evaluate an extremity trauma?
3. What should you be looking for in a fetal ultrasound in the pregnant patient that has been involved in a MVA?
4. Since bleeding between the fetus and mother is a concern in trauma, what actions should be taken once the patient and the fetus are stabilized?
5. What criteria must be met before a pregnant trauma patient can be discharged from the hospital? (Hint: these are essentially the opposite of the symptoms found in placental abruption)
6. What antibiotics should be given in a case of sexual assault?
7. What are some classic signs of physical abuse?

Quick Review 50

1. What are the common viruses that cause myocarditis?
2. A South American immigrant has cardiomegaly and achalasia. What is the organism likely responsible for this patient's disease?
3. What are the major Jones Criteria in the diagnosis of rheumatic heart disease?
4. Tiny septic emboli fly off the infected valve in endocarditis and travel to peripheral vessels, causing tiny hemorrhages. What are the names of some of these sites of micro-hemorrhage?
5. What is the best study to visualize a vegetation on a heart valve?
6. What is the treatment for endocarditis?

Quick Review 51

1. What blood pressure range is considered pre-hypertension?
2. How many consecutive abnormally high readings are needed before prescribing BP medications?
3. What is the typical first-line agent prescribed in treating newly-diagnosed HTN?
4. What is the chemical that increases as a result of ACE inhibitors, and is thought to cause the adverse effects of cough and angioedema?
5. Which BP medications have a relative contraindication in diabetic patients? Why?
6. Which BP medication should all DM, CHF, and post-MI patients take as part of their BP regimen?
7. Which antihypertensive drug fits the following description?
 - First dose orthostatic hypotension -
 - Hypertrichosis -
 - Dry mouth, sedation, severe rebound HTN -
 - Bradycardia, impotence, asthma exacerbation -
 - Reflex tachycardia -
 - Cough -
 - Avoid in patients with sulfa allergy -
 - Angioedema -
 - Development of drug-induced lupus -
 - Cyanide toxicity -

Quick Review 52

1. What is the most common cause of secondary HTN?
2. A 24-year-old woman comes to the clinic for a check-up and is found to have markedly elevated BP. She is at a recommended body weight, follows a good diet, exercises, and does not smoke or use birth control. What might be the cause of her HTN? What might be seen on radiological imaging?
3. What can be offered as alternative contraceptive to a woman whose current estrogen-containing OCPs are causing HTN?
4. Hypoperfusion and resultant tissue ischemia are the concern in shock patients. What is the chemical marker of this?
5. Name the different types of shock and the mechanism behind each:

Cardiogenic	
Extra-cardiogenic	
Hypovolemic	
Anaphylactic	
Neurogenic	
Septic	

Quick Review 53

1. What study should be ordered for a patient suspected of having an AAA (abdominal aortic aneurysm)?
2. What are the recommendations for screening for AAA with ultrasound?
3. What are the first recommendations to patients with claudication besides medication optimization?

4. List the 3 factors in Virchow's triad and give examples of each:

Factor	Example

5. What are several methods to prevent DVTs in hospitalized patients?
6. What should be ordered in a patient suspected of having a DVT?
7. A patient comes to the ER following a motor vehicle collision, and CXR reveals widening of the mediastinum. What imaging study would confirm your diagnosis?

Quick Review 54

1. A 55-year-old woman presents with complaint of new headache, jaw claudication, and tenderness of the temporal artery. What test will reveal the diagnosis? What is the treatment?
2. Why should steroids be started immediately in patients in which you have a high suspicion of temporal arteritis?
3. A 35-year-old Japanese American woman has fever, malaise, and decreased carotid and limb pulses. What will be seen on radiology? On biopsy?
4. A known asthmatic develops increasing fatigue, fever, and rash. What vasculitis might she have? What might be seen on blood tests?
5. What are the signs and symptoms of Henoch-Schönlein purpura?
6. What are the key symptoms of Kawasaki disease?
7. What is the treatment for Kawasaki disease? What complication is the treatment trying to prevent?

Quick Review 55

1. What are the unique structures of the fetal circulation that close after birth?
2. HYQ: What medication is used to close a PDA?
3. A newborn is found to have a congenital heart disease that causes early cyanosis. What medication does this newborn need?
4. What is the most common congenital heart defect?
5. Describe briefly the sequence of events in Eisenmenger's syndrome:
6. What are the abnormalities associated with tetralogy of Fallot?
7. What heart defect are Down syndrome patients at higher risk of having?

Quick Review 56

1. In a Swan-Ganz catheter (pulmonary artery catheter), the wedge pressure is equal to what?
2. Which blood products replace clotting factors?
3. A patient is brought to the ER status post MVA. It appears he has sustained blunt abdominal trauma and is hypotensive. You immediately order a type and cross and start IVF. The patient is found to be O⁻ so the lab sends up 6 units of AB⁺ PRBCs. What is the next step in the management of this patient?

4. For what indications would you use the following?

Packed RBCs	
Fresh Frozen Plasma (FFP)	
Platelets	
Albumin	
Hetastarch	
Normal Saline (NS)	
Lactated Ringer's (LR)	

5. What is the cause of the acute hemolytic transfusion reaction? Anaphylactic reaction?
6. What are some agents used to treat shock due to a weakly beating heart?
7. What commonly used agents cause peripheral vasoconstriction?
8. What medications are used to treat febrile and urticarial transfusion reactions?

Quick Review 57

1. Which oral hypoglycemic medicine should not be given when a patient is to have a radiologic procedure in which he will need IV contrast?
2. A patient taking warfarin chronically for a history of thromboembolism requires surgery. What can be given in the perioperative period to keep the patient anticoagulated?
3. What are the 5 W's of postoperative fever? To what do they refer?
4. What studies are ordered to evaluate the cause of a fever in a postop patient?
5. What is used to evaluate patients that may have a lower extremity DVT?
6. What should be prescribed to abdominal post-op patients to help reduce atelectasis?

Quick Review 58

1. Clean-contaminated wounds involve an incision through disinfected skin and would involve one or more of the following structures?
2. What is seen on abdominal x-ray or CT scan that indicates a ruptured viscus?
3. What is the classic finding in the abdominal exam of a patient with mesenteric ischemia?
4. During a surgical procedure, the anesthesiologist notices that the patient's temperature has climbed quickly and her muscles are rigid. Recognizing this feared complication, the doctor should administer which medicine?
5. What are a few contraindications to the transplant of the following organs?
 - Heart –
 - Lung –
 - Liver –
6. What is the type of rejection that is treatable with immunosuppressive agents? What is the mechanism of this rejection? Within what time frame may it show up?

Quick Review 59

1. What is a normal range for the A-a gradient?
2. A patient brings her child into your office with complaint of sore throat and runny nose. What is likely not the cause of this patient's symptoms?
3. What are the feared complications of untreated streptococcal pharyngitis?
4. What are the signs of peritonsillar abscess? (SU2 p34)
5. What is a helpful symptom to differentiate a common cold from the flu?

Quick Review 60

1. A surgical patient has had a nasogastric tube in place for two weeks due to gastroparesis. He has had a persistent fever and elevated WBC count without an identified source. Urine analysis, cultures, and CXRs are negative and the wound is healing well without signs of infection. He has no abdominal pain or symptoms to indicate intra-abdominal catastrophe. What study might reveal the source of this fever?

2. What are classical CXR findings in atypical pneumonia?

3. What organism is associated with the following:

Associated with atypical pneumonia in young adults	
Associated with atypical pneumonia in the elderly and very young	
Most common pneumonia in children (infant to 5 years old)	
Most common cause of pneumonia in neonates	

4. A hospital has multiple admissions of elderly patients presenting with atypical pneumonia. All were present at the grand re-opening of an old bingo establishment that has an indoor waterfall. What is the likely causal organism?

5. What is the treatment for atypical pneumonia? (SU2 p38)

6. Cystic fibrosis patients are at risk for acquiring pneumonia from which organism?

7. What is the typical time frame after which acute bacterial sinusitis is the cause of purulent nasal discharge?

Quick Review 61

1. A friend tells you that he was hospitalized for fungal pneumonia after a trip to the deserts of New Mexico. What medication did he mostly likely receive in the hospital to treat his pneumonia?

2. What are the 2 most common treatment options for PCP (*Pneumocystis carinii* pneumonia)?

3. Fill in the table of criteria used to determine when a PPD is considered positive:

Induration Size	Considered Positive in these Situations
5mm	
10mm	
15mm	

4. Why is pyridoxine (vitamin B6) given to patients on RIPE therapy?

5. What is the $\text{PaO}_2:\text{FiO}_2$ ratio in ARDS?

6. Which method of O_2 delivery can be used to give the patient the most O_2 without putting them on a ventilator?

Quick Review 62

1. What does an asthma patient who has asthma attacks about 4 times per week need for her medication regimen?
2. What is the most effective treatment for COPD?
3. At what point do patients with chronic COPD qualify for home O2?
4. What treatment is proven to decrease morbidity and mortality in a COPD patient?
5. What are the requirements to diagnose chronic bronchitis?
6. The common form of emphysema has what kind of distribution?
7. What is the hallmark sign of COPD?

Quick Review 63

1. Which lung cancers are more common in smokers, and where are they found?
2. A 60-year-old smoker presents with the complaint of paresthesias and pain in the left upper extremity. On exam he has left eyelid drooping and miosis, which he says are new. What is the name of this syndrome? What is the disease?
3. How might a patient with superior vena cava syndrome present?
4. HYQ: What is the initial treatment for small cell lung cancer? (SU2 p45)
5. What is the classic symptom of laryngeal cancer?
6. Wegener's granulomatosis and Goodpasture's syndrome can have similar presentations with hemoptysis, dyspnea, and hematuria. What are some key differences to help distinguish the two?
 - Wegener's -
 - Goodpasture's -
7. What findings make a solitary pulmonary nodule more likely to be malignant? (SU2 p43)

Quick Review 64

1. What imaging studies are most helpful in diagnosing a PE?
2. What is a classic sign of PE on CXR?
3. What is the next step in the management of a patient that you suspect has pulmonary HTN because of his symptoms of JVD, loud S2, dyspnea, and fatigue?
4. What is the primary drug category used to treat pulmonary HTN?
5. A lung cancer patient is re-admitted to the hospital for dyspnea. He is found to have re-accumulation of his pleural effusion. What do you expect the pleural-to-serum protein and LDH ratios from the thoracentesis to be? What do you expect the pleural fluid protein content to be?
6. A trauma patient involved in a motor vehicle collision has a right sided fluid collection evident on CXR. An emergent chest tube is placed and thick pink fluid evacuates. What is the pink fluid? What structure is likely damaged in this patient?
7. What study can help you determine whether pleural effusion is loculated or free-flowing in the thorax?

Quick Review 65

1. What anatomic locations are options for immediate needle decompression of a tension pneumothorax (PTX)?
2. How is a small pneumothorax treated?
3. What are important symptoms in tension PTX?
4. How do you treat a large hemothorax, chylothorax, PTX (>15%), or pleural effusion?
5. An obese middle-aged man comes to your clinic with the complaint of fatigue. He reports that he falls asleep in the middle of conversations with his wife and children. What condition does he likely have, and what options are available to help him?
6. A patient is intubated and a color change end tidal CO₂ indicates that CO₂ is indeed coming out with expirations. However, only the right lung sounds are audible. What is the problem?
7. A tall, thin, young male develops an abrupt onset of SOB and right-sided chest pain. What CXR findings would indicate a pneumothorax in this patient?

Quick Review 66

1. What is the most common cause of croup?
2. Croup can be diagnosed by remembering 4 "S"s. What are they?
3. What radiologic sign do you look for with epiglottitis?
4. What organism is responsible for epiglottitis?
5. What is extremely important to remember before examining a child suspected of having epiglottitis?
6. What is a typical presentation of bronchiolitis?
7. When is maternal administration of corticosteroids indicated in the case of preterm delivery?
8. What tests are available to confirm the diagnosis of cystic fibrosis (CF)?

Quick Review 67

1. What virus is associated with gastroenteritis in cruise boat passengers? In winter time?
2. What is the treatment for clostridium difficile (C. diff) infection?
3. After examining a patient with C. diff, how should one's hands be cleaned?
4. A patient has bloody diarrhea following ingestion of ground beef. What sequela is he at risk for developing? What are the three main features of that disease?
5. What pathogen is likely responsible for a patient that ate some egg salad made with mayonnaise that had been sitting out at a party for hours, and subsequently developed vomiting several hours later?
6. A family went camping and developed greasy, foul smelling diarrhea. What is the likely pathogen?
7. Trophozoites and cysts are seen in the stool sample of a patient with bloody diarrhea. What is the likely pathogen, and what is the likely source?

Quick Review 68

1. Clinically, what differentiates HBV surface antibody from HBV core antibody?
2. What does it mean if a patient has HBV core antibodies, but no HBV surface antibodies or HBV surface antigen?
3. How can you differentiate chronic HBV infection with a good prognosis (because of less viral replication) from that with a worse prognosis?
4. What is a common vector for Hep A virus?
5. Which hepatitis virus confers an increased risk of hepatocellular carcinoma?
6. Which hepatitis virus confers a high risk of chronic hepatitis?

Quick Review 69

1. How does the treatment for diffuse esophageal spasm differ from that of achalasia? (SU2 p60)

2. Fill in the name esophageal disorder that matches the description below:

Chest pain; uncoordinated contractions; corkscrew pattern on barium swallow	
Inability to relax the LES; bird's beak on barium swallow	
Bad breath; regurgitation of food eaten days ago	

3. What are the initial steps in treatment of GERD?

4. Besides the sensation of "heart burn", what is common symptom with GERD?

5. What is Barrett's esophagus? Why is it important?

6. Which type of esophageal cancer is most prevalent in the United States?

7. Which medicines are the most effective in combating GERD?

Quick Review 70

1. How can active *H. pylori* be diagnosed?
2. What is a treatment regimen for eradication of *H. pylori* infection? (SU2 p65)

3. Fill in the key symptoms between gastric ulcer and duodenal ulcer below (SU2 p65)

	Gastric Ulcer	Duodenal Ulcer
Timing of pain		
Effect of eating		

4. Name two big risk factors for peptic ulcer disease (PUD)?
5. What are two major complications that can occur with PUD?
6. What quick and easy study may reveal a perforation? What specifically are you looking for?
7. What are some physical signs of a bleeding ulcer?
8. What is the tumor marker to look for in gastric cancer? (SU2 p66)

Quick Review 71

1. What are the most common causes of acute pancreatitis in the United States? (SU2 p78)
2. Pancreatitis can cause bluish skin discoloration in what two locations? What are the names of these signs?
3. If pancreatitis is due to gallstone obstruction of pancreatic duct, what should be done after the pancreatitis has passed?
4. What is a likely cause for pancreatic pseudocyst?
5. What is the tumor marker most useful in the diagnosis of pancreatic cancer?
6. What procedure is performed to treat an isolated cancerous tumor in the head of the pancreas? (SU2 p79)
7. What test would confirm the diagnosis in a patient with >3L/day of watery diarrhea?

Quick Review 72

1. Fill in the blank for the study design that matches its characteristics

Study Design	Characteristics
	Identifies TWO groups: diseased group and healthy group. Retrospectively compares them. Weakened by recall and selection biases
	Seeks to estimate disease prevalence and exposure across a population
	Examines a collection of studies on a given subject
	Prospective blinded study involving placebos, existing therapies, and experimental interventions
	Focuses on ONE group with a shared exposure or disease and either prospectively or retrospectively compares them
	Examines a collection of cases to seek insight into the disease of interest. Useful in rare diseases.

2. Match the type of bias with its description

Bias	Description
	Memory errors produce incorrect data
	Subject awareness of being studied alters their answers and behavior from normal
	Certain medical studies attract subjects with particular medical histories rather than general population
	Studies that show a difference are preferably published and then later included in meta-analysis rather than studies that support the null hypothesis
	Screening tests designed to detect asymptomatic disease may miss rapidly progressive disease because the interval between successive screenings only detects slowly progressive ones
	Screening test may allow earlier diagnosis of disease but does not translate into actual length of survival

3. What does an odds ratio estimate in the case of a disease with low prevalence?

Quick Review 73

1. What is the absolute risk reduction (ARR) in the following? Patient group A given β -blockers after MI had 66% survival, and patient group B not given beta blockers had 50% survival.
2. What is a null hypothesis?
3. What is type I error?
4. What is type II error?
5. A study shows that taking 325mg of aspirin a day has no effect on ischemic cardiac events. What type of error is this?
6. What is the formula for positive predictive value (PPV)?
7. What is the formula for negative likelihood ratio (NLR)?
8. What is the number needed to treat (NNT) if an intervention offers an absolute risk reduction (ARR) of 15%?
9. What is most important in a screening test? In a confirmatory test?

Quick Review 74

1. What must be communicated to a patient in order for him to be considered informed to give consent?
2. When is it OK to withhold information from a patient?
3. Where is euthanasia legal?
4. Why can a heavily intoxicated patient refusing medical intervention be treated against his will temporarily?
5. A patient has a living will that states he does not want to be placed on a ventilator. His wife tells you to place him on the ventilator for one week and then remove it if he is not improving. What should you do in this scenario?
6. In what scenarios does an unemancipated minor not require parental consent for treatment?

Quick Review 75

1. Where in the GI tract is each of the following substances absorbed?
 - EtOH –
 - Vitamin B₁₂ –
 - Bile salts –
 - Potassium –
2. What two serum markers aid in the diagnosis of celiac sprue? (SU2 p67)
3. What does the intestinal biopsy show in a patient with celiac sprue?
4. What hematologic finding commonly coincides with tropical sprue, and how do we treat this?
5. What differentiates an intestinal biopsy of celiac sprue from one of Whipple disease?
6. A patient is undergoing testing to identify the cause of her anemia. She was unable to absorb oral vitamin B₁₂, but when she was given B₁₂ along with intrinsic factor, she was able to absorb the B₁₂. What is her diagnosis?
7. What labs should be ordered to identify the pathogen in a patient with an acute diarrheal illness?
8. What is the most common cause of adult chronic diarrhea?

Quick Review 76

1. According to the ROME II Diagnostic Guidelines for IBS, what signs and symptoms are not characteristic of IBS?
2. Which form of IBD is often positive for ASCA and negative for pANCA?
3. Which form of IBD causes perianal fissuring and fistulas?
4. In which form of IBD would you see a "lead pipe" appearance on barium enema?
5. What are the first-line treatments for IBD?
6. What are the three most common causes of small bowel obstruction (SBO) in descending order (in the United States) (SU2 p73)?
7. What is the most common cause of large bowel obstruction?

Quick Review 77

1. What might you see on CT scan of the abdomen in a patient suspected of having ischemic colitis?
2. What is the classic presenting history of appendicitis?
3. In a woman with history and labs suggestive of acute appendicitis, what additional lab should be done first before surgery?
4. Describe the different signs that might be seen in patients with appendicitis. (SU2 p71)
5. HYQ: What is the classic time-frame for which post-op ileus resolves in the different parts of the gut? (SU2 p72)
 - Small bowel:
 - Stomach:
 - Colon:
6. What patient populations are most susceptible to volvulus?
7. What should you look for on an abdominal x-ray in a patient suspected of volvulus?

Quick Review 78

1. What are risk factors for diverticulosis?
2. What is the treatment for mild diverticulitis?
3. What is the treatment for diverticulitis with abscess formation?
4. Which type of hemorrhoids are painful, and where are they located?
5. What is the treatment for hemorrhoids?
6. What do you call an abnormal tract between a hollow viscus (such as the bowel) and the perianal skin?
7. How can a carcinoid tumor be localized?

Quick Review 79

1. During a routine exam, a 70-year-old man is found to have new-onset iron-deficiency anemia. What should you suspect and investigate further?
2. A patient with colon cancer has local lymph node involvement without distant metastasis. What stage of cancer is this? (SU2 p76)
3. What tumor marker is used in colon cancer patients?
4. At what intervals will a post-colon cancer resection patient need colonoscopy?
5. What gene is responsible for familial adenomatous polyposis (FAP)?
6. In what condition does the patient have intestinal polyps that are hamartomas, and pigmentation of the lips, oral mucosa, hands, and genitals?
7. At what age should colon cancer screening begin?
8. List the recommendations for colon cancer screening

FOBT (fecal occult blood test)	
Flexible sigmoidoscopy + double contrast barium/air enema	
Colonoscopy	

Quick Review 80

1. What are common etiologies of upper GI bleeds? (SU2 p77)
2. What are the most common causes of lower GI bleeds? (SU2 p77)
3. A patient in the ER has just thrown up his second basin full of blood. He is drunk and tachycardic. What is the next step in managing this patient?
4. What are the risk factors for cholelithiasis?
5. What are the key features of the history of a patient with cholelithiasis?
6. How is the HIDA scan used?
7. What lab value is reliably elevated in the case of bile duct obstruction?
8. What is the term for a stone caught in a bile duct?
9. A patient has an abdominal x-ray taken as part of an ER work up. The radiologist noted that the patient's gallbladder appears calcified. What is the next step in management? (SU2 p81)

Quick Review 81

1. How can alcohol-induced fatty liver disease be reversed?
2. What is the name of the disease where there is thrombosis of the hepatic vein or hepatic portion of the inferior vena cava (IVC)?
3. How is the liver different in Budd-Chiari versus cirrhosis?
4. What antibiotics can be used to treat spontaneous bacterial peritonitis (SBP)?
5. What lab values will help to make the diagnosis of SBP?
6. What is the medical treatment for varices?
7. What two diuretics are used in conjunction for the treatment of ascites/portal hypertension?
8. What is the surgical procedure used as a temporizing measure for severe portal hypertension?

Quick Review 82

1. What is the screening lab for hemochromatosis?
2. What are some key clues to the diagnosis of hemochromatosis?
3. How is excess copper secreted from the body?
4. Where does excess copper deposit and what symptoms does that cause?
5. What copper-related lab value would you order in a patient suspected of having Wilson disease?
6. What agents would be used to treat Wilson disease?
7. What is the primary treatment for PBC?

8. List the key differences between PBC and PSC. (SU2 p84)

	PBC	PSC
Sex		
Assoc. Diseases		
Serum marker		
Radiology		

9. What are the important characteristics of Gilbert's disease?
10. Crigler-Najjar syndrome Type I causes severe disease and often death because of the severe deficiency of what enzyme?
11. What is the serum marker for hepatocellular carcinoma (HCC)?

Quick Review 83

1. What would be the common presentation of tracheoesophageal fistula (TE fistula)?
2. What are the key characteristics of the H&P of a patient with pyloric stenosis?
3. What is seen on biopsy of the colon in a Hirschsprung patient?
4. What are key characteristics in the H&P of a child with intussusception?
5. What study can be used to diagnose a 2 year-old child with painless rectal bleeding?

6. Fill in the chart for unconjugated hyperbilirubinemia/jaundice of the newborn.

	Physiologic	Exaggerated Physiologic / Breast Feeding	Breast Milk
Age			
T. Bili level			
Cause			
Treatment			

7. What characteristics might help you identify newborn jaundice as pathological?

Quick Review 84

1. What are the two common disorders that carbonic anhydrase inhibitors (acetazolamide) treat?
2. What diuretic is used in the initial stage of increased intracranial pressure?
3. Which diuretics lose calcium in the urine and are therefore contraindicated in nephrolithiasis patients? Which diuretics help to retain serum calcium?
4. Which side effect is commonly associated with the potassium-sparing diuretic spironolactone?
5. What bacteria typically cause pyelonephritis?
6. What are the signs and symptoms of pyelonephritis?
7. How many bacteria have to be present in the urine sample to diagnosis pyelonephritis?
8. What is the treatment for pyelonephritis?

Quick Review 85

1. What is the pattern of the pain associated with nephrolithiasis?
2. What is the treatment for radiolucent kidney stones? What are these stones made of?
3. What do *Proteus* and *Klebsiella* produce that causes the formation of the struvite stones ($\text{Mg-NH}_4\text{-PO}_4$)?
4. What studies will you use to diagnosis most kidney stones?
5. What study is used for the radiolucent stones?
6. What should be done in a female smoker over age 50 with hematuria besides a UA?
7. What class of diuretic is commonly used in patients with renal stones due to hypercalciuria in patients with a normal serum calcium level? (SU2 p90)
8. What is the most common location of renal stone impaction? (SU2 p91)

Quick Review 86

1. What intracranial abnormality is associated with autosomal dominant polycystic kidney disease?
2. What should be done next in a patient who is a smoker with flank pain, weight loss, hematuria, and polycythemia?
3. What is the most common cause of interstitial nephropathy/nephritis?
4. A patient involved in a motor vehicle accident has a crushed thigh. Your attending advises you to make sure to give the patient enough IV fluids to maintain a high urine output of 100-200ml/hr. Why did he advise this?
5. Uncorrected severe benign prostatic hypertrophy may cause what?

Quick Review 87

1. What are the defining characteristics of nephrotic syndrome? (SU2 p95)
2. What are the three drugs that can treat just about all the nephritic syndromes?
3. What might you see on biopsy of a patient with hematuria and problems breathing (but no upper airway symptoms)?
4. HYQ: glomerulonephritis + bilateral sensorineural deafness
5. What should be in the history of a patient with postinfectious glomerulonephritis?
6. What is serum marker should tip you off that a patient has lupus nephritis?
7. What test might you order in conjunction with the renal biopsy in a patient with hematuria and dyspnea?
8. What are classic characteristics of a patient with minimal change disease?
9. A HIV+ patient with nephrotic syndrome most likely has what disease?
10. Membranous glomerulonephritis is the most common nephrotic syndrome and has what characteristic on biopsy?
11. What is the biopsy appearance of membranoproliferative glomerulonephritis?

Quick Review 88

1. In prerenal-acute renal failure (ARF), what is the value for the fractional excretion of sodium (FENa)? For the BUN:Creatinine ratio?
2. Which test is used for screening diabetic patients for kidney damage?
3. What blood pressure medications are renal protective and preferred in the treatment of HTN in chronic kidney disease (CKD) patients?
4. What drug is used for chronic kidney disease to lower their potassium levels on a chronic basis?
5. What are the indications for dialysis?
6. What is the difference between hemodialysis and peritoneal dialysis?

Quick Review 89

1. Fill in the table comparing the types of renal tubular acidosis (RTA):

	Type I RTA	Type II RTA	Type IV RTA
pH			
Key Serum Lytes			
Tx			

2. Name common causes of each acid base disturbance:

Metabolic Alkalosis	
Respiratory Alkalosis	
Respiratory Acidosis	
Anion Gap Metabolic Acidosis	
Non-Gap Metabolic Acidosis	

3. A previously healthy 25-year-old man came to the hospital with a head injury and is now hypernatremic and has polyuria. What is the diagnosis?
4. What complications are avoided with gradual, rather than rapid, correction of rehydration of a hypernatremic patient?

5. Determine the acid-base disorder.

pH	HCO ₃ ⁻	pCO ₂	Disorder
7.30	12	26	
7.25	17	40	
7.23	24	55	

Quick Review 90

1. What are the serum Na^+ and urine osmolality expected to be in diabetes insipidus (DI)?
2. What should happen to a patient's urine osmolality with nephrogenic DI after ADH administration?
3. How do you correct central DI?
4. What is the treatment for nephrogenic DI?
5. Though hyponatremia is defined as a serum Na^+ of <135 , at what serum Na^+ does a patient get into trouble and risk seizure?
6. What is the consequence of correcting hyponatremia too rapidly? How rapidly can it safely be corrected? (SU2 p100)
7. How will a large infusion of IV mannitol likely affect the serum Na^+ ?
8. Explain how hyponatremia develops despite serum hyperosmolality (>295 Osm/kg)?
9. How are sodium levels corrected for high glucose? (SU2 p100)

Quick Review 91

1. Which lung cancer is highly associated with SIADH as a paraneoplastic syndrome?
2. What is the first agent you should give a patient with hyperkalemia and EKG changes?
3. After having given the calcium gluconate (or calcium chloride), what are the other treatments needed in the hyperkalemic patient?
4. What are the two eponym signs of hypocalcemia?
5. Which diuretics lose calcium? Which spare it?
6. What electrolyte abnormality fits the following descriptions?
 - Peaked T waves on EKG
 - Flattened T waves on EKG
 - U waves on EKG
 - QT prolongation
 - QT shortening
7. How are total calcium levels corrected for low albumin?

Quick Review 92

1. What are common antibiotics used to treat uncomplicated cystitis?
2. What are risk factors for developing bladder cancer?
3. What is the primary lab screen for bladder cancer?
4. What is the primary study done to confirm the diagnosis?
5. What are the treatment options for urethritis?
6. What are classic symptoms of benign prostatic hyperplasia (BPH)?
7. Name the two classes of medications used to treat BPH. (SU2 p104)

Quick Review 93

1. In a patient suspected of having prostate cancer, what might an elevated alkaline phosphatase indicate?
2. What are two common side effects of radical prostatectomy?
3. A sexually-active homosexual man arrives at the ER because of sudden severe testicular pain that occurred while he was playing soccer 30 minutes ago. Before that time, he had no dysuria or increased frequency of urination or testicular pain. What is the likely diagnosis?
4. What is the next step in the management of testicular torsion confirmed with US?
5. What is the most common germ cell tumor of the testis?
6. Undescended testes put a patient at higher risk for what?

Quick Review 94

1. In a patient with a varicocele, what is the scrotal mass made of?
2. What is the most common physical finding/presenting symptom of a child with Wilms' tumor?
3. At what age would a normal child have to be before diagnosis of a nocturnal enuresis could be made?
4. A 4 year-old male is diagnosed with a UTI. What study should be performed next?
5. What are the recommended therapies for nocturnal enuresis? (SU2 p106)
6. What is the classic presentation of a varicocele?
7. Three year-old with an abdominal mass, hematuria, and hypertension. What is the most likely diagnosis?

Quick Review 95

1. Increased body temperature, acidosis, and exercise shift the hemoglobin-oxygen dissociation curve in which direction? What effect does this have on oxygen delivery to the tissues? (SU2 p124)
2. An elderly man is seen in the ER with a chief complaint of headache. Further questioning reveals that since the weather has turned cold and he had to begin using his kerosine heater; he has felt fatigued and a little nauseated along with the headache. On physical exam the man's lips seem remarkably red. What do you expect the pulse oximeter reading to be? How will you treat this man? (SU2 p124)
3. Will anemia of chronic disease give a microcytic or normocytic anemia? (SU2 p127)
4. In hemolytic anemia, why is the serum haptoglobin level decreased? Why is the serum lactate dehydrogenase (LDH) increased?
5. A 25 year old woman is seen in the clinic with complaint of fatigue and chronic joint pain. Physical exam and routine labs reveal a malar rash, mildly elevated temperature, and anemia. It is unclear whether this woman's anemia is caused by autoimmune hemolytic anemia or from her recent menstruation. What test can distinguish between possible autoimmune mediated hemolytic anemia versus other causes of anemia including non-immune mediated hemolytic anemia?

Quick Review 96

1. A 30 year man travels to Africa and takes the antimalarial primaquine which he was prescribed for the trip. He begins to experience dizziness and fatigue. He also notices that his urine has become dark. What would you expect to see on his blood smear?
2. An elderly man is in the office for evaluation of fatigue and exertional shortness of breath. He is fit for his age, but he says that he isn't able to be as active recently. He has no fever or symptoms suggesting infection. On exam his conjunctivas are pale and a stool guaiac is positive. Until proven otherwise, this patient should be considered as having what disease? (SU2 p125)

3. Given the following presentations, provide the type of anemia and whether it is macro-, normo-, or microcytic

Presentation	Anemia type	MCV
Mental status change, neuropathy, constipation		
Heavy menses, strict vegetarian, ice pica		
Dark urine, jaundice, hepatosplenomegaly		
Alcoholic, malnourished		

4. What virus can cause aplastic anemia as well as erythema infectiosum ("fifth disease")?
5. When using the Schilling test, excretion of the radiolabeled vitamin B₁₂ in the urine indicates what? So, a patient that is given radiolabeled vitamin B₁₂, but does not excrete any of it in his urine. He is then given radiolabeled vitamin B₁₂ plus intrinsic factor and still does not excrete any of it. Which inflammatory bowel disease might this patient have?
6. Both folate deficiency and vitamin B₁₂ deficiency can result in a megaloblastic anemia. How can they be differentiated?

Quick Review 97

1. Given the type of anemia, provide the key descriptions of each blood smear

Anemia Type	Key Descriptions
Hemolytic	
Iron-deficiency	
Lead poisoning	
Folate deficiency	
B ₁₂ deficiency	
Sideroblastic	
α -thalassemia	
β -thalassemia	
Sickle cell	

2. List three acquired causes of sideroblastic anemia.
3. Besides *Staph. aureus*, which organism may be responsible for osteomyelitis in a sickle cell patient?
4. What would be the concern in a sickle cell patient that contracts erythema infectiosum ("fifth disease")?
5. In α -thalassemia, how many genes can potentially be mutated? List in order of increasing severity the variants of α -thalassemia.
6. In β -thalassemia, how many genes can potentially be mutated? List in order of increasing severity the variants of β -thalassemia.
7. Other than vaccination, how is pneumococcal infection prevented in children with sickle cell disease? (SU2 p131)
8. HYQ: What medication is used in the long-term management of sickle cell anemia?

Quick Review 98

1. Which type of infection will cause an eosinophilia? (SU2 p132)
2. Goodpasture's glomerulonephritis results from auto-antibodies targeting the glomerular basement membrane (GBM). Which hypersensitivity reaction is this, and how can it be treated? (SU2 p132)
3. An elderly woman is brought to the ER after she fell and struck her head. She has not lost consciousness, but she is on chronic warfarin therapy to treat her atrial fibrillation. A non-contrast head CT reveals a small subdural hemorrhage. What clotting factors are depleted in warfarin treated patients? How will you treat this patient now to prevent further bleeding?

4. Provide the common indications for each of the anticoagulants listed.

Anticoagulant	Indications
ASA	
Clopidogrel, ticlopidine	
Abciximab	
Dipyridamole	
Heparin	
Enoxaparin	
Argatroban	
Fondaparinux	
Warfarin	

5. An intern is writing an order for heparin. What lab study does she need to order to properly monitor the heparin therapy?

Quick Review 99

1. A trauma patient has been recovering in the hospital for a week after fracturing his pelvis and femur in a motorcycle crash. He is unable to walk, so he has been on heparin therapy for DVT prophylaxis. Routine labs show a startling drop in his previously normal number of platelets. What steps should be taken now?
2. A 44-year-old man is recovering postoperatively from surgical fixation of a severe open femur fracture. Overnight the patient's mental status declines and physical exam reveals multiple petechiae, bleeding from the surgical site, confusion, oliguria, tachycardia, and hypotension. What labs would you order to aid in confirming the diagnosis, and how would you treat the patient?
3. A 20-year-old woman is being evaluated for newly acquired menorrhagia. Previously her menses were of normal duration and volume. She has also experienced gingival bleeding and nose bleeds, which are also new for her. Physical exam reveals bruises and petechiae. Labs reveal a platelet count <50,000. What is the mechanism of her disease? What treatment does she need?
4. A 22-year-old woman is sent to your office for evaluation for excessive bleeding after a dental extraction. She has since stopped bleeding, but her dentist recommended that she see a doctor. History and physical reveals that she has heavy periods and easy bruisability. Lab work-up reveals a low normal hematocrit, increased bleeding time, increased PTT, and decreased ristocetin cofactor assay. What pharmacologic interventions can be prescribed to this woman? What drug should be avoided?
5. A male infant is circumcised and uncontrolled bleeding results. While resuscitation ensues, labs are drawn and the results show normal ristocetin cofactor assay, normal platelet level, increased PTT, normal PT, and a normal bleeding time. What additional labs are needed, and what will be the treatment for this patient?

Quick Review 100

1. A 63-year-old obese woman with uncontrolled diabetes undergoes an emergency laparotomy to repair a perforated duodenal ulcer. After her surgical procedure, she is taken to the ICU intubated and on a ventilator with both an arterial line and a right subclavian central line. Post-op Hgb level is 12. The surgical ICU resident is tasked with her continued resuscitation. As of now, the patient's blood pressure is marginal with a heart rate in the 140s. What treatment is necessary for this patient at this point?
2. A hospitalized patient is suspected of having an infection. What should be done before empiric antibiotics are started?
3. A man returns from a safari in Africa and now has periodic fevers, chills, diaphoresis, muscle aches, and fatigue. How could this man have avoided this illness?
4. A 19 year-old college female comes to the student clinic for evaluation of recent fatigue and sore throat. She says that she has never gotten so tired with sore throats in the past, but this one has "wiped her out". She does not remember having any sick contacts, but she admits to kissing a few different guys in the last 2 months but denies sexual intercourse. On exam she has posterior cervical lymphadenopathy, fever, and an easily palpable spleen. What test might confirm the diagnosis?
5. Why must heparin be given for 3-5 days along with warfarin when warfarin therapy is initiated?

Quick Review 101

1. An HIV-positive patient is seen in the ER with shortness of breath. He reports that over the past few weeks it has become increasingly difficult to breathe when exerting himself. He has a cough, fever, and you notice white plaques on the tongue and visualized pharynx. He admits to also having pain with swallowing too. You fear this patient's disease has advanced, so you order a CD4 count. What do you expect the CD4 count to be?
2. A 39-year-old male HIV patient receives a head CT for headache and new onset confusion and slurring of words. The imaging reveals a ring-enhancing lesion. What is the suspected diagnosis? How could that diagnosis be confirmed?
3. A 25-year-old man is diagnosed with HIV and must begin a HAART regimen. What classes of drugs should his regimen include initially?
4. The CD4 count of a 41-year-old HIV patient has fallen to 190 despite HAART treatment for many years. What prophylactic antibiotics should be started?
5. What is the rate of transmission of HIV through a needle stick incident? What drugs should be given in case there is appreciable risk of transmission of HIV in this setting?

Quick Review 102

1. A 70-year-old woman is seen in the clinic with the chief complaint of itchiness in her hands occurring after washing them in warm water. She also has occasional burning in the feet accompanied by erythema. What would you expect to see on CBC? What treatment can you offer in the meantime before her labs return (in a few days) and the diagnosis is confirmed? After the diagnosis is confirmed?
2. A 66-year-old woman fractures her hip after falling from standing. Radiographs reveal "punched out" lesions in the vertebrae, hips, and femurs. The patient says that she has had increasing back pain, weakness, and fatigue, but she has attributed all of that to aging. Labs show anemia, hypercalcemia, increased BUN and creatinine. What studies would help to find the diagnosis and what would expect to be seen?

3. Compare the characteristics of the hematologic neoplastic conditions

	WBC Count	Splenomegaly	Blood Smear
ALL			
CLL			
AML			
CML			
Hairy Cell			

4. A 23-year-old man is seen in the office with the complaint of weight loss. The patient is a fit young man that has been trying to add muscle mass and is surprised because he seems to look scrawnier now. Further questioning reveals that he has night sweats as well. Physical exam reveals an elevated temperature, non-tender lymphadenopathy, and an easily palpated liver and spleen. Laboratory work up shows Reed-Sternberg cells from the lymph node biopsy. What therapy is recommended, and what is the prognosis?
5. What diagnosis is associated with a translocation of chromosomes 9 and 22?
6. HYQ: A patient's peripheral smear shows macrocytosis and hypogranular granulocytes with bilobed nuclei. What is the diagnosis?

Quick Review 103

1. An Rh-positive mother had a pregnancy with an Rh-negative fetus, but began to have vaginal bleeding and so was admitted to the hospital. Unfortunately, the patient had a spontaneous complete abortion. What should be given to the mother in case of another pregnancy?
2. A 5-year-old boy is brought in with a "swollen leg". The child has not had any recent trauma according to the parents and the physical exam confirms that. However, the swollen area actually is a mass that seems imbedded within the vastus medius of the right thigh. What is the next step in the management?
3. What is the most common adrenal tumor in children? What lab studies can be used to diagnose this?
4. A 4-year-old girl is brought into the county clinic with an upper respiratory infection (URI). The mother reports that this child seems to get sick more often than her friends' kids of the same age. Physical exam is remarkable for dangling thumbs, short stature, and hypopigmentation of some skin areas. Labs reveal a pancytopenia. What is the likely diagnosis?
5. A 3-month-old child is brought to the office with difficulty breathing, fatigue, and pallor. He has a heart murmur and abnormal thumbs. Labs are as follows:

Hgb	4 g/dL
Hct	12 %
WBC	8,000 per μ L
Platelets	300,000 per μ L
MCV	99 fL

What is the diagnosis? What would you expect the level of erythropoietin to be?

Quick Review 104

1. What nerve is injured in carpal tunnel syndrome? (SU2 p196)
2. What scenarios favor a posterior shoulder dislocation? (SU2 p196)
3. When are wrist splints most effective in treating treat carpal tunnel syndrome?
4. Why are pelvic binders used on trauma patients with pelvic fractures?
5. A young man comes in s/p MVA. His car was T-boned and his left arm trapped. He is unable to abduct his thumb. What bone do you suspect is broken and what nerve do you suspect to be involved?
6. What are the general steps of management of an open fracture?

Quick Review 105

1. A patient comes to the ER s/p MVA with a suspected tib/fib fracture. The patient's lower leg is pale, dorsalis pedis pulse is absent, and the patient has pain with passive motion of the leg. What is the treatment? (SU2 p197)
2. How is compartment syndrome diagnosed?
3. For what grade sprains should a lace-up ankle support be used rather than semi-rigid ankle supports?
5. What is an important short-term complication of immobilization due to hip fracture?
6. What is an important long-term complication of a hip fracture?

Quick Review 106

1. What imaging study is preferred for imaging soft tissue in joint injuries, such as ligamentous tears? What about bone?
2. At what level is disc herniation most common? What imaging modality is used to confirm disc herniation?
3. How long should a patient rest after a back muscle strain?
4. A young woman thrown from a horse presents with low back pain, urinary retention, saddle anesthesia, and decreased rectal tone. What is the treatment for her condition?
5. What is the organization of the brachial plexus?
6. Assuming brachial plexus injury as the cause of these deficits, what nerve root level is injured in the following scenarios:
 - Paresthesia to the lateral foot
 - Loss of foot dorsiflexion
 - Anterior shoulder numbness
 - Loss of the ability to spread the fingers
 - Parasthesia to the posterior forearm

Quick Review 107

1. What common medication will cause osteoporosis if used long term?
2. What should be seen in the joint aspirate of a patient with gouty arthritis? Pseudogout arthritis?
3. What are the treatment options available for gout?
4. Which joints are more likely affected in gout? In pseudogout?
5. A 6-year-old girl is brought to the children's ER for suspected broken bone in the forearm after the child fell while running around the backyard. The parents tell you that this is patient's third fracture. The patient doesn't seem to respond to questioning, to which the parents inform you that she is hard of hearing. With this clue, you check the patient's eyes to help confirm your diagnosis. What are you looking for? If this diagnosis is correct, how can it be treated?
6. A 60-year-old man is in the clinic for a checkup. He's a new patient and you notice that his legs are bowed out. He also is bent forward with kyphosis and is hard of hearing. He has no complaints besides his favorite hat not seeming to fit anymore. He claims that it feels smaller. What imaging is most sensitive to diagnose this process?

Quick Review 108

1. A 22-year-old man is seen in the clinic with new-onset pain in his left elbow. On exam, his left elbow is mildly swollen, painful with movement, and has some overlying erythema. He also has a fever and an elevated WBC count. His history is unremarkable except for having multiple sexual partners recently. What is the treatment for this patient?
2. What is the most common organism in osteomyelitis overall? What organism should also be kept in mind for sickle cell patients? What organism should also be kept in mind for IV drug users?
3. What is the initial radiologic study that would be ordered for a patient suspected of having osteomyelitis? In case of the initial study being negative, but the diagnosis of osteomyelitis still being likely, what is the next best radiographic study to order?
4. A 56-year-old outdoors man in Connecticut goes to the local clinic for evaluation. He has a fever, chills, malaise, arthralgia, and bilateral facial weakness. He is slurring somewhat because of the facial problem. He says that the whole left side of the face became weak first and now is worse than the right at this point. Physical exam is remarkable for a bulls-eye shaped rash on his right thigh. What is the organism and vector responsible for this disease? What is the primary treatment?
5. Fill in the table comparing the primary bone tumors:

	Sex/Age	Location on Bone	Radiologic Findings
Osteosarcoma			
Ewing sarcoma			
Osteochondroma			

Quick Review 109

1. What are the deformities of the hand associated with rheumatoid arthritis (RA)?

2. Complete the table comparing rheumatoid arthritis (RA) and osteoarthritis (OA):

	Factors eliciting pain/stiffness	Relieving factors	Characteristic joints involved	Hand deformity names
RA				
OA				

3. What are the seronegative HLA-B27 spondyloarthropathies?

4. What disease is associated with each of the following serologic markers?

Marker	Disease
Anti-Scl-70	
Anti-Ro (anti-SSA), Anti-La (Anti-SSB)	
Anti-histone antibodies	
Anti-Jo-1 antibodies	
Rheumatoid Factor	
Anti-dsDNA antibodies	
Anti-Sm antibodies	
HLA-DR4	
Anti-RNP	
Anti-mitochondrial antibodies	

5. A 65-year-old African American woman is evaluated for weakness. The patient has been an active person but now has weakness in her lower extremities. On exam both are equally weak. She also has a rash on the chest. What labs would be helpful to order initially?

Quick Review 110

1. A 35-year-old Caucasian male comes to the clinic as a new patient. As you enter the room, you notice that he seems to have bad posture. But he tells you that bending forward relieves the pain he feels in his lower back. He goes on to tell you that the pain is worse in the morning but improves with use. What would you expect to see on an x-ray of his spine?
2. A 67-year-old woman complains of pain in her extremities, especially in the shoulders and hips. It is hard for her to even get out of bed. ESR is markedly elevated. What is the treatment?
3. What serious disease must you look out for in patients with polymyalgia rheumatica?
4. What are the characteristics of CREST syndrome, and with what immunologic marker is it associated?
5. A 40-year-old woman with a malar rash, myalgias, pleuritic chest pain, and neuropathy also complains of dry eyes and dry mouth. Labs are positive for anti-dsDNA antibodies, SSA, and anti-Sm antibodies. What are the diagnoses?
6. What are the comorbidities associated with fibromyalgia?

Quick Review 111

1. A 13-year-old overweight African American boy is seen with the complaint of right knee pain. He denies injuring himself in sports or by some other means. What would be seen on x-ray? What will happen if this condition isn't corrected promptly?
2. On a scheduled health exam of a 3-month-old infant, the doctor notices that the child has asymmetric inguinal skin folds. What maneuvers can help determine whether this child has developmental dysplasia of the hip?
3. A concerned mother brings in her 6-year-old son because he "runs funny". She says that it's hard to explain, but he doesn't run with the same gait as the other boys in his age group. Also, he is slower than all of them when they race. You notice the boy stand up from sitting on the ground by using his hands to push against his legs and thighs. He also has larger calves than expected. What protein is deficient in this boy and on what chromosome is it located?
4. A female toddler is brought to the urgent care clinic because the child refuses to use her left arm. On exam, it is obvious the child is anxious as she supports the left forearm with the right one. The left elbow is slightly bent and the forearm is pronated. The patient will not move the arm, and screams when you try to passively flex the affected elbow. What is pathophysiology of this diagnosis?

Quick Review 112

1. A 66-year-old male with long-standing poorly-controlled diabetes arrives at the ER complaining of a horrid smell coming from his left foot. He denies pain, but admits to having lost the feeling in his feet a long time ago from the diabetes. On exam there is an open wound between the 1st and 2nd toe on the left foot. Pus drains from the wound and some crepitus is felt in the area. The odor is atrocious. The patient is tachycardic and feverish. What treatment does he need?
2. A 44-year-old African American woman is in the office for evaluation of an area of inflammation in her left axilla. She said that initially the area was simply itchy but has now become painful. On exam the area has about six papules and nodules that are erythematous, indurated, and warm. The skin is fluctuant, and drainage is noted at some of the lesions. How will this patient need to be treated?
3. A patient is admitted to the ICU for fluid resuscitation and monitoring following trauma with significant blood loss. A central line that was inserted into the right groin emergently in the ER has been in place for a few days, and now the surrounding skin is red and warm. Also, the patient's temp is rising, and the WBC count is elevated. What is the likely cause?
4. A 7-year-old boy is brought to the county clinic with a rash. The mother denies that the child has acted ill. The exam is unremarkable besides perioral honey-crusted lesions and regional lymphadenopathy. What can be used to treat this patient?
5. A 57-year-old diabetic female has a severe infection in her right foot. An open purulent wound is draining from the top of her right foot and redness extends from the toes to just above the ankle. However, she has exquisite tenderness that extends beyond the redness to midway up the leg. CT scan of the extremity shows many small air collections in the fascia overlying the muscles. What treatment is needed?

Quick Review 113

1. A 15-year-old girl is brought to the dermatologist for treatment of her acne. What is the causative organism in acne?
2. An elderly woman presents with a rash on her right flank. She says that the rash appeared a few days ago and followed a recent cataract surgery. The rash is causing her terrible pain. On exam the rash extends from the spine past the mid-axillary line in a dermatomal distribution. The rash is composed of grouped erythematous vesicles. What can be used to treat this woman?
3. A 41-year-old woman with rosacea is seen in the clinic. It is a mild case, for which avoidance of the triggers of facial flushing would be an initial therapy. What are some examples of things to avoid?
4. A friend of yours has significant allergies this season for which his doctor has given him the following treatment, "a shot, and pills that I take decreasing doses each day for about a week." Your friend is concerned because he noticed that his face suddenly has "as many zits as I did when I was seventeen." What medication was likely in the shot and the pills he is taking?
5. A 25-year-old man is in the office for cold sores. On exam he has a collection of 3 small vesicles at the vermillion border. He says that they are painful. This is the second time he has had these. He says he knew he was about to get them because he could feel a tingly sensation at that location a few days before the lesions appeared. What studies might be helpful to diagnose this disease?

Quick Review 114

1. An obese, 42-year-old diabetic woman complains of a pruritic rash underneath her breasts. Exam reveals an erythematous patchy rash underneath large, pendulous breasts. What diagnostic study would be helpful, and what would be seen?
2. A 30-year-old patient with a pruritic scaly lesion is evaluated. A KOH preparation of the lesion shows hyphae. What oral agents are available to treat this condition in the case that it is refractory to topical treatment?
3. A 13-year-old girl is brought to the county clinic with a rash on her wrists and hands, which becomes intensely pruritic when she bathes. On exam, the rash consists of narrow burrows and erythematous papules. What medication options are available for this rash?
4. A 22-year-old Asian patient comes to your office. She is concerned because she notices small areas of hypopigmentation on her back. She says these areas are more noticeable in the summer. What is the organism that is likely causing her skin condition?
5. When treating pediculosis with malathion, what symptoms might suggest malathion toxicity?

Quick Review 115

1. A 34-year-old male patient is started on phenytoin to control his seizures. Shortly thereafter, he begins to have malaise, fever, headache, and a rash. On physical exam, his skin is very red and sloughing off in some areas. How should this patient be treated?
2. An infant is brought to the physician with an area of greasy scaling over part of her scalp. What recommendations can be given for this?
3. A 40-year-old patient has erythematous plaques covered with silver scales on his knees and elbows. He also complains of arthralgia. What do you expect to find on a skin biopsy?
4. A 27-year-old woman complains of fatigue and muscle aches. She notes a recent recurrence of her cold sores. Physical exam reveals a large plaque with a red center and perimeter but a paler inner region. What is the diagnosis, and the cause of the disease in this case? What can be given to treat her?

Quick Review 116

1. A 70-year-old patient has dry, scaly skin of the lower legs. It is also of a darker color than the rest of his skin. What is the pathophysiology of this disease?
2. Name the diseases that match the lesion descriptions given.

Description	Disease
Target lesion	
Punctate bleeding when silvery scale is removed	
Christmas tree pattern rash	
Pruritic, dry rash of flexor surfaces	
Red plaques with silvery scales	
Greasy, yellow scales on scalp	
Pruritic, purple, polygonal papules and plaques	
Tender erythematous pretibial nodules	

3. What are the two most important ways to both prevent and treat decubitus ulcers?
4. A 26-year-old computer programmer complains of an itchy rash on his back. It started out as a single erythematous oval with a thin white scale over it. The rash then progressed and now forms a series of streaks in a roughly triangular shape on his back. The man is averse to taking medications. How can he be treated with this preference in mind?
5. A 40-year-old woman arrives at the ER malnourished and complaining of abdominal pain. She has a fever, tachycardia, and dehydration. Her skin is leathery from chronic sun exposure, but you especially notice nodules appearing on her anterior leg. The skin overlying these is reddish-purple and tender to palpation. The patient denies trauma to the area. Abdominal CT with contrast reveals obstruction with a string sign and skip lesions. What are the diagnoses for this patient?

Quick Review 117

1. What do the antibodies target in bullous pemphigoid and pemphigus vulgaris?

2. Name the types of melanomas that go with the description

Description	Melanoma
Grows only vertically	
Found on palms, soles, and nail beds	
Most common type	
A longstanding precancerous lesion before dermal invasion	
Lateral growth occurs before vertical invasion	

3. What type of biopsy is appropriate for a pigmented skin lesion? A pale firm pearly heaped up area of epidermis? An erythematous, scaly lesion?

4. A hairy homeless man with blisters on the face and hands comes to the ER. Lab studies reveal elevation of AST, ALT, and GGT. What enzyme is deficient in this disease? What comorbid infection may also be present in this man?

5. A 60 year old bald Caucasian man comes to the clinic with several reddish, sandpaper-like lesions on the top of his head each measuring less than a 1 cm. How can these be treated?

6. A 65-year-old male presents with a pearly papule with telangiectasia on the tip of his nose. What is the likely diagnosis?

Quick Review 118

1. What is the term for the malar hyperpigmentation that can occur during pregnancy?

2. A 31-year-old woman has patches of hypopigmentation on her skin. Considering the associated comorbidities with this condition, what endocrine test might you order initially?

3. Name the common plastic surgery procedure done for drooping eyelids.

4. What treatment is indicated for a newborn with an uncomplicated strawberry hemangioma on the face?

5. A 30-year-old woman comes to the medical clinic because she has noticed a few small areas of complete absence of hair on her scalp. What are some labs that would help narrow the diagnosis of the cause of this skin condition?

Quick Review 119

1. What is the mean age of menarche in the US?
2. In which Tanner stage does thelarche occur, and in which races does this occur earlier than 10.5 years of age?
3. Does the growth spurt usually occur before or after menarche?
4. What is the definition of precocious puberty? (SU2 p225)
5. What are some causes of heterosexual precocious puberty? Isosexual?
6. What is the treatment for central precocious puberty?
7. Which phase of the menstrual cycle is fixed at 14 days, regardless of cycle length?
8. FSH triggers the release of which hormone from the follicle?
9. What hormonal change causes menstruation?

Quick Review 120

1. Premature menopause is defined as menopause before what age?
2. What is required for a diagnosis of menopause?
3. As periods become less frequent during perimenopause, what hormonal changes are occurring?
4. What are the non-hormonal options for the treatment of menopausal hot flashes?
5. To which menopausal patients should bisphosphonates be given?
6. What are the mechanisms of action of OCPs?
7. OCP use decreases the incidence of what type of cancer?
8. What are the side effects of estrogen? Progesterone?

Quick Review 121

1. Why are combined hormonal contraceptive regimens not indicated in breastfeeding women?
2. Which are the most cost effective means of reversible birth control?
3. Why is the transdermal contraception patch less effective in obese women?
4. When can lactational amenorrhea be relied upon as an effective method of contraception?
5. What are the non-contraceptive benefits of the progestin-releasing IUD?
6. What is the definition of primary amenorrhea?
7. What's the most common cause of secondary amenorrhea?
8. What is the work-up for a patient with amenorrhea?

Quick Review 122

1. What is the treatment of choice for primary dysmenorrhea? (SU2 p233)
2. What medications are effective in the treatment of PMS and PMDD? (SU2 p233)
3. In any woman of childbearing age with abdominal pain, what must be ruled out?
4. Where are the most common locations outside the uterus for endometrial implants?
5. What are the "3 D's" of the presentation of endometriosis?
6. What is the first line treatment for endometriosis?

Quick Review 123

1. What volume or duration of bleeding is considered abnormal uterine bleeding? (SU2 p234)
2. What is the most common clotting disorder that can cause menorrhagia? What lab values are abnormal?
3. What is the most common cause of irregular heavy uterine bleeding?
4. What is the laboratory work-up for abnormal uterine bleeding?
5. For which type of cancer are women with PCOS at an increased risk and why?
6. What is the most common cause of hirsutism in the US? What lab findings are used to make the diagnosis?

Quick Review 124

1. With which kinds of vaginitis is it recommended to treat the sexual partner as well?
2. What drug is used to treat both bacterial vaginosis and Trichomonas?
3. What substance is responsible for causing toxic shock syndrome? What is the treatment?
4. What is the complication of gonorrhea or chlamydia that infects the capsule of the liver?
5. What drugs are no longer used for gonorrhea due to resistance?
6. What are the potential symptoms of gonorrhea and chlamydial infections?
7. What are the diagnostic features of PID?
8. What are the treatment options for PID?
9. What is the treatment for genital warts?
10. Which STD can be mistaken for IBD due to its association with fistula formation? (SU2 p238)

Quick Review 125

1. What are the treatment options for fibroids?
2. Which type of endometrial cancer has a worse prognosis?
3. What are the indications for an endometrial biopsy?
4. What is the treatment for endometrial cancer?
5. What is the treatment for a lesion found to be HGSIL on biopsy?

Quick Review 126

1. What is the most common type of ovarian tumor?
2. Which kind of ovarian tumor has three or more different tissue types within the tumor? Are they benign or malignant?
3. Which type of ovarian tumors can cause precocious puberty through secretion of estrogen? Which cause virilization through secretion of androgens?
4. What ultrasound findings are consistent with benign ovarian tumors? With malignant ovarian tumors?
5. What are the symptoms of ovarian cancer?
6. Which age group is most at risk for lichen sclerosis? What is the management of the disease?
7. What is the most common cause of a breast mass in a patient younger than 25 years old? What is the treatment?
8. What findings are suspicious on a mammogram?

Quick Review 127

1. A 34-year-old woman presents with a smooth, mobile breast mass. On FNA, it is found to contain clear, non-bloody fluid. What is the diagnosis and management?
2. A woman presents with bloody nipple discharge upon stimulation and a mass behind the areola. What is the management of this condition?
3. What does "orange peeling" of the skin on the breast indicate? New nipple retraction? Dimpling?
4. What is the next step in the management of non-palpable calcified lesions identified on mammogram?
5. What is the most common site for breast cancer?
6. How are most breast cancers detected in the US?
7. A woman presents with breast tenderness, erythema, and orange peeling. Antibiotics for cellulitis fail to improve her symptoms. What do you suspect and what is the next step if this is the case?
8. Once you have ruled out invasive cancer, what is the management of LCIS? Why is drug therapy so effective?
9. When is radiation therapy performed for invasive carcinoma?
10. Why are core biopsies typically preferred over FNAs?

Quick Review 128

1. Between what weeks' gestation is a fetus most susceptible to teratogens and why?
2. How do the following physiologic measures change during pregnancy: cardiac output, stroke volume, heart rate, plasma volume?
3. What effect does pregnancy have on blood pH? What benefit does this have for the fetus?
4. What hormone contributes to glucose intolerance often seen in pregnancy?
5. When should you treat physiologic anemia of pregnancy?
6. What minimum dose of folate is recommended to women of childbearing years to prevent neural tube defects? What is the recommendation for women who have previously had a child with neural tube defects?
7. During pregnancy, how many additional calories are needed during the 3rd trimester? Lactation?
8. How much weight should a woman with a normal pre-pregnancy BMI gain during pregnancy?
9. Under what circumstances is intercourse not recommended during pregnancy?

Quick Review 129

1. What is the management of a woman whose titers reveal her to be rubella non-immune?
2. When is the triple or quad screen performed? What are its components?
3. When is a low-risk pregnant woman screened for gestational diabetes? What test is used?
4. What disorders can increased nuchal translucency indicate?
5. What are the indications for amniocentesis?
6. What is a low pregnancy-associated plasma protein A (PAPP-A) level associated with?
7. What's the most common cause of an abnormal tri screen?
8. What are the differences among the blood levels on the quad screen for trisomy 18 and trisomy 21 and Turner syndrome?

Quick Review 130

1. A pregnant woman has a fasting glucose of 130. What is the next step in her management?
2. What is the drug of choice for gestational diabetes? What other drugs are safe for use in pregnancy for gestational diabetes?
3. What fetal cardiac defect is most associated with gestation diabetes?
4. What are the risk factors for preeclampsia?
5. What is the only definitive cure for preeclampsia?
6. What is the treatment for the seizures associated with eclampsia?
7. What lab findings are characteristic of HELLP syndrome? (SU2 p251)
8. When and why is vitamin K given to pregnant women taking anticonvulsants?

Quick Review 131

1. What are the criteria for the diagnosis of hyperemesis gravidarum?
2. What are the treatment options for nausea associated with pregnancy?
3. What is the treatment for DVT in pregnancy and how long is it continued? What drug do you NOT give during pregnancy?
4. What dipstick finding is considered diagnostic of a UTI?
5. How are migraines treated in pregnancy and why?
6. What are the main fetal complications of tobacco use in pregnancy?
7. What is the maximum safe dose of radiation in pregnancy? What is the recommendation about radiologic tests during pregnancy?
8. What teratogenic effect is associated with tetracyclines?
9. What fetal cardiac abnormality is associated with lithium?

Quick Review 132

1. What does the TORCHES acronym stand for?
2. What congenital infection is a leading cause of preventable blindness?
3. Which congenital infection is associated with progressive unilateral hearing loss?
4. What two measures are important in preventing vertical transmission of HIV?
5. What advice should you give a mother with HIV about breastfeeding her infant?
6. You diagnose temporal lobe encephalitis in a neonate. What congenital infection is likely the cause?
7. What are the late manifestations of congenital syphilis?

Quick Review 133

1. What are some risk factors for ectopic pregnancy?
2. Once the β -hCG has reached what level should an ultrasound be able to detect intrauterine pregnancy?
3. When is it appropriate to treat an ectopic pregnancy medically vs. surgically?
4. What is the most common cause of spontaneous abortions?
5. What is the presentation and management for inevitable abortion?
6. Up to what weeks' gestation can a dilation and evacuation be used in the management of intrauterine fetal demise? After this time?

Quick Review 134

1. What is the most frequent initial ultrasound finding for IUGR?
2. In general, what are the AFI findings for oligohydramnios and polyhydramnios?
3. What might cause oligohydramnios in the 2nd trimester? 3rd?
4. Gastroesophageal atresia might cause what effect on amniotic fluid level and why?
5. By what mechanism do NSAIDs decrease amniotic fluid volume?
6. What is the difference between PROM and P-PROM?
7. What two tests on vaginal fluid can be used to help detect a rupture of membranes?

Quick Review 135

1. Compare the treatment of preterm labor at 33 and 3/7 weeks to the treatment at 34 and 3/7 weeks gestational age.
2. What drugs are used for tocolysis? What is the only FDA approved tocolytic?
3. What are the signs and symptoms of magnesium toxicity? What is the reversal agent?
4. What is the management of a woman in labor who has a complete placenta previa?
5. Why does the donor (smaller) twin in cases of twin-twin transfusion syndrome have a better prognosis?
6. What is the most common cause of infertility in a couple?

Quick Review 136

1. What is the usual physical cause of each of these types of decelerations?
 - Early –
 - Variable –
 - Late –
2. One hour into the active stage of labor, a fetus's heart tones become nonreassuring. What actions are taken immediately?

3. Match the following statements to the type of deceleration with which they belong.

A check mark-shaped fetal heart tracing	
Onset either before, during, or after uterine contraction	
Consistent dips in fetal heart tones when uterine contractions begin	
Occur after uterine contraction has begun	
Unpredictable changes in fetal heart tone tracing	

4. What is the role of fetal pulse oximetry in labor and delivery?
5. What would be some contraindications to fetal scalp electrode placement?

Quick Review 137

1. What defines prolonged latent phase of labor? Prolonged active phase?
2. By how much can an epidural lengthen Stage 2 of labor?
3. What is the 1st "P" that must be assessed in the event of labor dystocia? How it is assessed?
4. What are some of the methods that can be used for induction of labor?
5. What are some indications for induction of labor? Contraindications?
6. What is the definition for uterine hyperstimulation?

Quick Review 138

1. What are the 3 kinds of breech presentation? Which is most common?
2. When is external cephalic version offered to women?
3. What are the indications for a vertical incision vs. a low transverse incision for a caesarean section?
4. What are some indications for caesarean section?
5. What potential adverse events can occur during a VBAC?
6. Why is the baby held at the same level as the umbilical cord and placenta when the cord is cut?
7. How should patients who have hepatitis B or C who wish to breastfeed be counseled? HIV?
8. A woman that is postpartum day 2, status post caesarean section develops a temperature of 101°F, uterine tenderness, and foul lochia. Her urine urinalysis is normal and her incision is clean, dry, and intact. What does this patient likely have and what is the treatment?
9. What is the definition of postpartum hemorrhage? What is the most common cause?

Quick Review 139

1. When is a normal child's weight regained, doubled, tripled, and quadrupled in terms of their birth weight?
2. Define failure to thrive.
3. How do you definitively distinguish between Type 1 and Type 2 diabetes in a child?
4. When does a normal child's height increase by 50%, double, and triple?
5. How many blocks can a child put in a tower at these ages: 12 months, 18 months, 2 years, 3 years?
6. An infant that has any remaining primitive reflexes after what age needs a work-up for CNS pathology?
7. What is the first solid food parents should give their child?
8. Why should cow's milk not be give before 1 year of age?

Quick Review 140

1. Who under the age of 11-12 should receive an MCV4 meningococcal vaccine?
2. When can a child switch to a front-facing car seat? A booster seat in the back seat?
3. How many kilocalories are in an ounce of breast milk? Formula?
4. Cephalohematoma increases the likelihood for what?
5. A 2-day-old baby boy presents with 2-3mm yellow pustules with red bases. What are these likely to be and what is the prognosis?
6. Why is it important to document mongolian spots?
7. What are some risk factors for SIDS?

Quick Review 141

1. What is the mnemonic for questions you should ask while examining adolescents?
2. What is the number one killer of adolescents and why?
3. In addition to MCV4, what other vaccines should asplenic pediatric patients >2 years receive?
4. What are the 3 C's of the prodrome of rubeola?
5. What are some causes of desquamation of the hands and the feet?
6. How long is the incubation period for pertussis? What is the treatment?
7. Which viral infection is characterized by sudden high fevers for 3-4 days but is otherwise asymptomatic? A rash will often appear when the fever dissipates.

Quick Review 142

1. What is the half-life of the IgG antibodies transferred from mother to infant?
2. What is the presentation triad for SCID?
3. What are the clinical features of Wiskott-Aldrich syndrome?
4. What is the management of chronic granulomatous disease?
5. If a female child is in the 80th percentile for height and the 25th percentile for head circumference, what chromosomal abnormality should you suspect?

Quick Review 143

1. What malignancy is associated with Down syndrome?
2. What GI complications are associated with Down syndrome?
3. What is WAGR syndrome?
4. What is the most common cause of congenital mental retardation in men?
5. A child presents with short palpebral fissures, a thin upper lip, smooth filtrum, and a flattened midface. He is in below the 10th percentile for height and weight, and his IQ is 65. What is the cause of his abnormalities? What could have been done to prevent them?

Rapid Review/Preview #1

What would you suspect in an ER patient with blood in the urethral meatus or a high-riding prostate?	
What type of acute renal failure would you suspect in patient with FENa < 1%?	
What are the protein and LDH criteria for an exudative effusion?	
What is the cause of muscle rigidity, fever, and rhabdomyolysis in a schizophrenic patient?	
What is the cause of bilious emesis in a newborn within hours after the first feeding?	
A 60-yr-old woman leaks urine when laughing or coughing. → What are her nonsurgical options?	
What is the most common cause of HTN in young women?	
What are the most common causes of seizures in children aged 2-10?	
Positive p-ANCA is associated with what conditions?	
What organism is known for causing infection in burn victims?	
A patient presents with a painless, pruritic papule with regional lymphadenopathy that evolves over 7-10 days into a necrotic ulcer with a black eschar. → What is the diagnosis and treatment?	
What is the late, life-threatening complication of chronic myelogenous leukemia (CML)?	
Which hernia carries the highest risk of incarceration indirect, direct, or femoral?	
What cause of aplastic anemia is associated with thumb abnormalities, diffuse hypo- or hyperpigmentation, café-au-lait spots, and short stature?	
What biostatic calculation looks at individuals with and without a disease and determines the likelihood of exposure to a risk factor?	
Which antidiabetic agent is associated with lactic acidosis?	
What is "cradle cap" and what is the treatment?	
What disease causes glomerulonephritis with deafness?	
What is the preferred diagnostic test for a pulmonary embolism?	
What rash presents with herald-patch followed by a Christmas tree pattern?	

Rapid Review/Preview #2

What is Beck's triad for cardiac tamponade?	
What lab findings are diagnostic of Hashimoto's thyroiditis?	
If you want to know if maternal age affects infant mortality rate but most of the variation in infant mortality is predicted by socioeconomic status, then socioeconomic status is a _____.	
What are the 3 reasons for involuntary psychiatric hospitalization?	
What is Charcot's triad in cases of gallbladder disease?	
What is the treatment for ITP in children?	
What infection causes aplastic crisis in sickle cell disease?	
Elderly male complains of bone pain and adds that his favorite hat no longer fits likely has what condition?	
What test is used in the tenth week of gestation to screen for chromosomal abnormalities?	
What causes secondary amenorrhea in a patient with normal prolactin + no response to estrogen-progesterone challenge + a history of D&C?	
What causes a crescent-shaped hyperdensity on CT that does not cross the midline?	
Most common pathogen causing croup is _____.	
What causes a transudative pleural effusion?	
Immunodeficiency with doughy skin is characteristic of _____.	
What is the treatment for opioid overdose?	
What is the treatment of septic shock?	
Most serious side effect of clozapine is _____.	
What are the 5 basic criteria for metabolic syndrome?	
What type of bias is present when a clinician is aware of the type of treatment his patient received?	
Sentinel loop on abdominal X-ray is seen with _____.	

Rapid Review/Preview #3

What are the usual imaging studies in a trauma series?	
What do an elevated erythropoietin level, elevated HCT, and normal O ₂ saturation suggest?	
Hampton's hump on X-ray is associated with _____.	
A mother who is frustrated with her child yells at her husband. What defense mechanism is she displaying?	
In which immunodeficiency are there chronic respiratory infections and a positive nitroblue tetrazolium test?	
What is the natural history of a leiomyoma?	
Which antihypertensives are used in a patient with severe preeclampsia?	
What type of headache causes unilateral, severe periorbital headache with tearing?	
What type of back pain is exacerbated by standing and walking and relieved with sitting and hyperflexion of the hips?	
A patient presents with acute-onset monoarticular joint pain and Bell's palsy → What is the likely diagnosis, how did he get it, and what is the treatment?	
A teenage girl presents with prolonged bleeding after dental surgery and with menses → Labs reveal a normal PT, normal or increased PTT, and increased BT → What is the diagnosis and treatment?	
What is the most common cause of "traveler's diarrhea"?	
In what circumstances should confidentiality not be protected?	
What is the only indication for administering hypertonic saline to a patient with SIADH?	
What causes rash with dermatomal distribution?	
What is the next step in the evaluation of a pulsatile abdominal mass and bruit?	
What causes flat-topped purplish, pruritic, papules?	
What is the definition of maternal mortality?	
Auer rods are associated with _____.	
What is the cause of joint pain and stiffness that worsens over the course of the day and is relieved by rest?	

Rapid Review/Preview #4

What is the treatment of cardiogenic shock?	
What systemic diseases can cause nephritic syndrome?	
Hypoxemia + pulmonary edema + normal pulmonary capillary wedge pressure	
What disorder is present in a teenager with a history of theft, vandalism, and violence toward family pets?	
What causes a continuous machine-like murmur?	
What would you suspect in a woman with preeclampsia in the first trimester?	
What CSF findings would you see in a case of subarachnoid hemorrhage?	
What acid-base disturbance is commonly seen in pregnant women?	
A husband asks that his wife not be told about her recently discovered lung cancer. → What do you do?	
Does a case-control study measure incidence or prevalence?	
What is the first-line treatment for a growth hormone-secreting pituitary adenoma?	
What are the indications for surgical repair of an abdominal aortic aneurysm?	
What characteristics of a nevus suggest that it may actually be a melanoma?	
Low urine specific gravity in the presence of high serum osmolality. → What is the diagnosis?	
What is the treatment of atrial fibrillation of unknown duration?	
Which lung cancer associated with SIADH?	
What important side effects are common to many of the atypical antipsychotics?	
What is the most common location for an ectopic pregnancy?	
Uterine bleeding at 18 weeks' gestation + no products expelled + membranes ruptured + cervical os open. → What is the diagnosis?	
ICU patient is awake and alert but cannot move anything but the eyes and eyelids. → What is the diagnosis?	

Rapid Review/Preview #5

What type of shock causes a decreased cardiac output, decreased PCWP, and decreased peripheral vascular resistance?	
What is the most common form of nephritic syndrome?	
What is the initial treatment for child presenting with acute asthma attack?	
What type of psychotherapy is used in treating phobias, obsessive-compulsive disorder (OCD), and panic disorder?	
What is the underlying cause of neonatal respiratory distress syndrome?	
What is the first test in the assessment of a woman presenting with secondary amenorrhea?	
What are the components of HELLP syndrome?	
What medication is used to diagnose symptomatic myasthenia gravis?	
An 11-yr-old obese, African-American boy presents with sudden-onset limp. What is most likely diagnosis, and what imaging studies would confirm this?	
What organism is associated with dog or cat bites?	
How is polycythemia vera distinguishable from secondary polycythemia?	
What is the medical treatment for hepatic encephalopathy?	
A young child presents in status epilepticus, but her parents refuse treatment on religious grounds. → What do you do?	
What percentage of values falls within one standard deviation (SD) of the mean? Two SDs? Three SDs?	
In which endocrine disorder might weight loss completely eliminate the need for medication?	
What rash is classically described as "dew drops on rose petals?"	
What is the classic endocarditis prophylaxis regimen?	
Café-au-lait spots on skin are characteristic of _____.	
What is the treatment for mild unconjugated hyperbilirubinemia? Severe unconjugated hyperbilirubinemia?	
What number is needed on bacterial culture of a clean-catch specimen to diagnose a UTI?	

Rapid Review/Preview #6

What is the classic ECG appearance in atrial flutter?	
A 60-yr-old obese patient presents with dirty, velvety patches on the back of the neck. → What is the diagnosis and what is the initial workup?	
What is the most common cause of hypothyroidism?	
Which type of bias is introduced when screening detects a disease earlier and thus lengthens the time from diagnosis to death?	
What are the exceptions to the requirement of informed consent?	
A 19-year-old man presents with a palpable flank mass and hematuria and U/S shows bilateral enlarged kidneys with cysts. → What brain anomaly is a/w this condition?	
What are the four main causes of microcytic anemia?	
What are four signs and symptoms of streptococcal pharyngitis?	
In which region of the US is Lyme disease endemic?	
Which joints in the hand are affected in rheumatoid arthritis?	
What causes xerostomia + parotid enlargement + xerophthalmia + anti-La antibodies?	
What are most common causes of seizures in young adults (18-35 years)?	
What is the most common cause of non-obstetric postpartum death?	
Uterine bleeding at 18 weeks' gestation + no products expelled + cervical os closed. → What is the diagnosis?	
Which Immunodeficiency presents with eczema, thrombocytopenia, and high levels of IgA?	
Which defense mechanism is displayed when a woman calmly describes a gory murder in great detail?	
What is the treatment for mild, persistent asthma?	
EKG with peaked T-waves and widened QRS	
What is the treatment for iron overdose?	
What is the acceptable minimum urine output in a stable patient?	

Rapid Review/Preview #7

What method is used to calculate fluid repletion in burn patients?	
Salicylate ingestion results in what type of acid-base disorder?	
What medication is used most commonly to induce ovulation?	
Psychiatric condition in which a person travels a long distance, takes a new name, and has no memory of his prior life.	
Which congenital infection might present with a "blueberry-muffin" rash?	
Which type of breast cancer increases the future risk of invasive carcinoma in both breasts?	
What is the classic symptom of placenta previa?	
An active 14-yr-old boy has anterior knee pain. → What is the most likely diagnosis?	
Joint aspiration reveals rhomboid-shaped, positively birefringent crystals. → What is the diagnosis?	
What type of oral infection has branching rods when examined microscopically?	
What is the next step in the evaluation of a patient with two consecutive Pap smears with atypical squamous cells of undetermined significance (ASCUS)?	
A 45-yr-old obese female with pruritis, clay-colored stools, and dark urine has an elevated alkaline phosphate and elevated bilirubin → What is the most likely cause?	
What infection can cause diarrhea and pseudoappendicitis?	
Which is more ethically unfavorable in a DNR patient: withdrawing life-sustaining care or withholding care?	
What is the most likely cause of acute lower GI bleed in patients older than 40?	
What is the most common underlying cause of pathologic fractures in elderly, thin women?	
What is the causative agent in pityriasis versicolor?	
What is the cause of chest pain in a young patient that has angina at rest with ST-segment elevation but normal cardiac enzymes?	
Which hypercholesterolemia treatment causes flushing and pruritis?	
What causes target lesions with a red center, pale zone, and dark outer ring appearing on the palms and soles with a prodrome of malaise and myalgias?	

Rapid Review/Preview #8

What autoimmune complication occurs 2-4 weeks after an MI?	
What name is given to stress-related hair loss? What is the treatment?	
What is the most common cause of Cushing's syndrome?	
What is the most likely cause of galactorrhea, impotence (or menstrual dysfunction), and decreased libido in a patient with a history of schizophrenia?	
What ethical problem exists when a doctor refers a patient for an MRI at a facility he owns?	
Patient presents with a sudden onset of severe, diffuse abdominal pain (AXR reveals free air under the diaphragm). → What is the next step in management?	
What are the two most common foodborne bacterial GI tract infections in the US?	
What is the diagnostic test for hereditary spherocytosis?	
What bullous skin disease has a negative Nikolsky's sign?	
A 25-year-old male presents with white plaques on his tongue and the back of his throat that scrap off with a tongue depressor. → What is the diagnosis? What should he be screened for?	
Young male with hip and back pain along with stiffness that improves with activity and worsens at rest → What is the most likely diagnosis?	
Cold water is flushed into a patient's ear, and the fast phase of the nystagmus is toward the opposite side. → Where is the lesion?	
What findings would you expect to see in a post-term pregnancy beyond 42 weeks gestation?	
What annual screening is recommended for women with strong family history of ovarian cancer?	
A 1-year-old is able to cruise, use two-finger pincer grasp, babble, and imitate actions. What part of his development is delayed?	
Which defense mechanism is a person who subconsciously pushes memories of past abuse out of his conscious mind using?	
What are some of the causes of an exudative pleural effusion?	
What would you suspect with eosinophilic casts found in the in urine?	
What are the side effects of corticosteroids?	
What is an acceptable urine output in a trauma patient?	

Rapid Review/Preview #9

What is the treatment for ventricular fibrillation (VF)?	
What skin blistering disease has a positive Nikolsky's sign?	
What is the most common inherited cause of hypercoagulability?	
Which genetic disorder is associated with multiple fractures and is commonly mistaken for child abuse?	
What is the most common cause of bloody nipple discharge?	
Which antibiotics should be avoided during pregnancy due to potential teratogenic effects?	
Antihistone antibodies are seen with what condition?	
What is the infectious cause of aplastic crisis in sickle cell disease?	
Tachycardia + wild fluctuations in BP+ headache + diaphoresis + panic attacks indicate what condition?	
What should always be done prior to LP?	
What is the next step in the diagnosis of cholecystitis when U/S is equivocal?	
What is the clinical definition of HTN?	
What are the most common causes of fever of unknown origin (FUO)?	
What is the most feared complication of a scaphoid fracture?	
Albuminocytologic dissociation (increased protein in CSF with only modest increase in cell count) indicates what condition?	
What two disorders should come to mind when a neonate has meconium ileus?	
Immunodeficiency with a positive nitroblue tetrazolium test	
Pediatric patient with red "currant-jelly" stools	
A young female with amenorrhea, bradycardia, and abnormal body image.	
What is the treatment for superior vena cava syndrome?	

Rapid Review/Preview #10

What statistical calculation looks at true positives and divides them by the number of patients with the disease?	
A 15-yr-old pregnant girl requires hospitalization for preeclampsia. Should her parents be informed?	
A patient is unable to inspire completely due to pain during palpation of the RUQ. What is this sign? What is the diagnosis?	
What is the reversal agent for heparin?	
What substances are known to cause hemolysis in patients with G6PD deficiency?	
What medications can be given to a pregnant woman with cystitis?	
A patient presents with limb pain on passive movement, pallor, poikilothermia, paresthesias, paralysis, and pulselessness. What is the treatment?	
What complication may arise from overly rapid correction of hyponatremia?	
A 60-yr-old patient presents with an acute onset of broken speech. What type of aphasia is this? What lobe and vascular distribution has been affected? What is the first step in the workup?	
What are the most common primary sources of metastases to the brain?	
What is treatment for mastitis in a patient that is breast-feeding?	
What characteristics favor carcinoma in an isolated pulmonary nodule?	
In which disease would you find atrophy of the mamillary bodies?	
What term describes heavy bleeding during and between menstrual periods?	
What is the most common type of tracheoesophageal fistula?	
What is the treatment for Kawasaki disease in the acute-phase?	
What is considered first-line pharmacotherapy for depression?	
Which antidepressants are associated with hypertensive crisis? What substance can exacerbate this effect?	
A 40-year-old black female is found to have noncaseating granulomas of the lung and hypercalcemia. What is the diagnosis?	
In what disease might you find Curschmann's spirals (whorled mucus plugs)?	

Rapid Review/Preview #11

Which type of renal tubular acidosis (RTA) is associated with abnormal H⁺ secretion and nephrolithiasis?

What are the causes of hypervolemic hyponatremia?

A burn patient presents with cherry-red flushed skin and coma. O₂ saturation is normal, but carboxyhemoglobin is elevated. What is the treatment?

What is the treatment for delirium tremens?

What is the most common cause of postpartum hemorrhage?

Which drugs block transmission through the AV node?

What skin lesion causes a pearly-colored papule with a translucent surface and telangiectasias?

What type of infection causes honey-crusted lesions usually around the nose or mouth?

What causes hypocalcemia, high phosphorus, and low PTH?

What causes stones, bones, groans, and psychic overtones?

What is the first-line treatment for acute otitis media?

Does a cohort study identify incidence or prevalence?

When can a physician refuse to continue treating a patient on the grounds of futility?

A violent patient with vertical and/or horizontal nystagmus has been exposed to what substance?

What diarrheal illness is associated with church picnics/mayonnaise?

What is a cause of congenital pure RBC aplasia?

What is the pentad of thrombotic thrombocytopenic purpura (TTP)?

A patient who visited the SW US presents with fever, malaise, cough, and night sweats. What is the diagnosis and treatment?

Ring-enhancing brain lesion on CT with seizures shows what?

What are the classic physical findings in cases of endocarditis?

Rapid Review/Preview #12	
A 55-year-old man has a sudden onset of pain in his first metatarsophalangeal joint after a night of drinking red wine. What is the diagnosis, workup, and how can it be treated chronically?	
Patient presents with a history of lithium use presents with copious amounts of dilute urine. What condition is this?	
What is the most common pituitary tumor, and what is the treatment?	
A male with a testicular mass is found to have an elevated beta-hCG. What is the diagnosis?	
What are the cardinal movements of labor?	
A 50-year-old female smoker presents with hematuria. What do you suspect?	
A 30-year-old female African immigrant presents with hematuria. What do you suspect?	
What therapies are used in treating polycystic ovarian syndrome?	
What type of bone fracture is most likely to result from a fall on an outstretched hand?	
A 2-month-old presents with projectile, non-bilious, projectile emesis. What is the first step in the management?	
A 16-year-old female has left arm paralysis after her boyfriend dies in a car crash. No medical cause is found. What is the diagnosis?	
A patient presents to the ER after a MVA with hypertension, bradycardia, and abnormal respirations. After ABC's, what is the next step in management?	
A normalizing pCO ₂ in a patient having an asthma exacerbation may indicate what problem?	
A patient has dyspnea, hilar lymphadenopathy on CXR, and hypercalcemia. What is the diagnosis?	
Which type of renal tubule acidosis is associated with abnormal HCO ₃ ⁻ and rickets?	
Chvostek and Trousseau signs are associated with what metabolic abnormality?	
A young patient whose father died at age 30 in an MVA suddenly collapses and dies while exercising. What is the cause of death?	
Gyn exam of a postmenopausal woman reveals inflammation and epithelial thinning of the anogenital area. What is the diagnosis?	
An IV drug user has JVD and a holosystolic murmur at left sternal border. What is the treatment?	
What is the classic ECG finding in pericarditis?	

Rapid Review/Preview #13

What is the treatment for neuroleptic malignant syndrome?	
A child has flesh-colored, umbilicated lesions on the face. What are these lesions, and where do they appear in adults?	
Which medication is used more than any other in the treatment of Parkinson's?	
What diagnostic test differentiates central from nephrogenic diabetes insipidus?	
A postop patient with significant pain presents with hyponatremia and normal volume status. What is the diagnosis?	
An elderly female presents with pain and stiffness of the shoulders and hips. She cannot lift her arms above her head. Lab shows an elevated ESR. What is the diagnosis?	
A child presents with oliguria, petechiae, and jaundice following an illness with bloody diarrhea. What is the most likely diagnosis and infectious cause?	
An 11-year-old boy presents with fever, weight loss, and night sweats. Radiology reveals an anterior mediastinal mass. What do you suspect? What if the patient was 30 years-old?	
What prophylactic medication is indicated in an HIV patient with a CD4 less than 100?	
What is the most common testicular cancer?	
A child presents with palpable purpura on the legs, abdominal pain, and arthritic pain in numerous joints. What is the diagnosis and treatment?	
Anticentromere antibodies are associated with what condition?	
Hyperphagia, hyperorality, hyperdocility, and hypersexuality. → What is the diagnosis?	
After a minor car accident, a woman wears a neck brace and requests permanent disability. What is the most likely diagnosis?	
What medication is given to accelerate fetal lung maturity? For how long is it given? At what gestational age is it no longer necessary?	
Patients with silicosis are at higher risk for what type of infection?	
A patient has exophthalmos, pretibial myxedema, and a decreased TSH. What is the diagnosis?	
PFTs show decreased FEV1/FVC. What is the diagnosis?	
A postmenopausal female presents with vaginal bleeding for the last 5 days. What is the next step?	
Which type of lung cancer is associated with hypercalcemia?	

Rapid Review/ Preview #14

What does a fall in systolic BP of > 10 mmHg with inspiration indicate?	
What laparoscopic findings can be seen in endometriosis?	
Hypertension + hypernatremia + hypokalemia, and metabolic alkalosis → What is the diagnosis?	
What is the LDL goal in a patient with diabetes?	
An 8-year-old child was in a motor vehicle accident and now requires emergency blood transfusion. Her parents are not present, but the child states she is a Jehovah's witness. What do you do?	
A 25-year-old male presents with pain and watery diarrhea after meals. Exam shows fistulas between the bowel and skin and nodular lesions on his tibias. What is the diagnosis?	
A 40-year-old female presents with a discrete area of complete hair loss on the scalp that has worsened over weeks. What is the treatment?	
CSF analysis shows low glucose, elevated neutrophils, and Gram-positive diplococci. What is the diagnosis?	
What are the characteristic findings in tertiary syphilis?	
A young child presents with thigh muscle weakness, a waddling gait, and pronounced calf muscles. What is the diagnosis?	
A female who was born in breech position is found to have asymmetric inguinal and gluteal skin folds on her newborn exam. What is the diagnosis and treatment?	
Head injury → initial altered mental status → resolution of mental status for a few hours → now with reemerging altered mental status. What is the diagnosis, underlying injury, and treatment?	
What medication is given for seizure prophylaxis in severe preeclampsia?	
What is the cause of erythroblastosis fetalis?	
Describe the treatment of hypertension in cases of pheochromocytoma?	
A 7-year-old boy presents with hemarthrosis. Lab work shows increased PTT and normal PT and bleeding time. What is the diagnosis and treatment?	
A young child has loss of the red light reflex. What is the diagnosis?	
A 22-year-old male has 4 months of social withdrawal, worsening grades, decreased emotional expression, and concrete thinking. What is the diagnosis?	
Honeycomb pattern on CT scan of the chest. What is the diagnosis and treatment?	
A tall, white male presents with acute shortness of breath. What diagnosis do you suspect? What is the treatment?	

Rapid Review/Preview #15

What is the first-line treatment for moderate hypercalcemia?	
A 45-year-old male presents with acute-onset flank pain and hematuria → What is the most likely etiology?	
What test is used to rule out urethral injury?	
A 75-year-old man presents with fatigue, lymphadenopathy, splenomegaly, and isolated lymphocytosis. What diagnosis do you suspect?	
Meningitis is diagnosed in a neonate. What are the most likely organisms, and what is the empiric treatment?	
What pathology causes an onion-skin appearance of the bone on X-ray?	
Which skin cancer classically presents with varying degrees of scaling or ulcerations?	
What is the treatment for the premalignant lesion from sun exposure that can lead to squamous cell skin cancer?	
What is the general treatment of DKA?	
A patient presents with weakness, nausea, vomiting, weight loss, and new skin pigmentation. Labs show hyponatremia and hyperkalemia. What is the treatment?	
What diagnosis would you consider in a patient with sacroiliitis?	
A child presents with a midline neck mass. What do you suspect?	
A child presents with a lateral neck mass. What do you suspect?	
What is the medical treatment for inflammatory bowel disease?	
What is the difference between Mallory-Weiss and Boerhaave tears?	
What is the treatment for TTP?	
Which of the following are elevated in DIC: fibrin split products, D-dimer, fibrinogen, platelets, and Hct?	
What EKG finding is a/w hypothermia?	
What infection is classically a/w cold agglutinins?	
What are the signs suggesting radial nerve damage with a humeral fracture?	

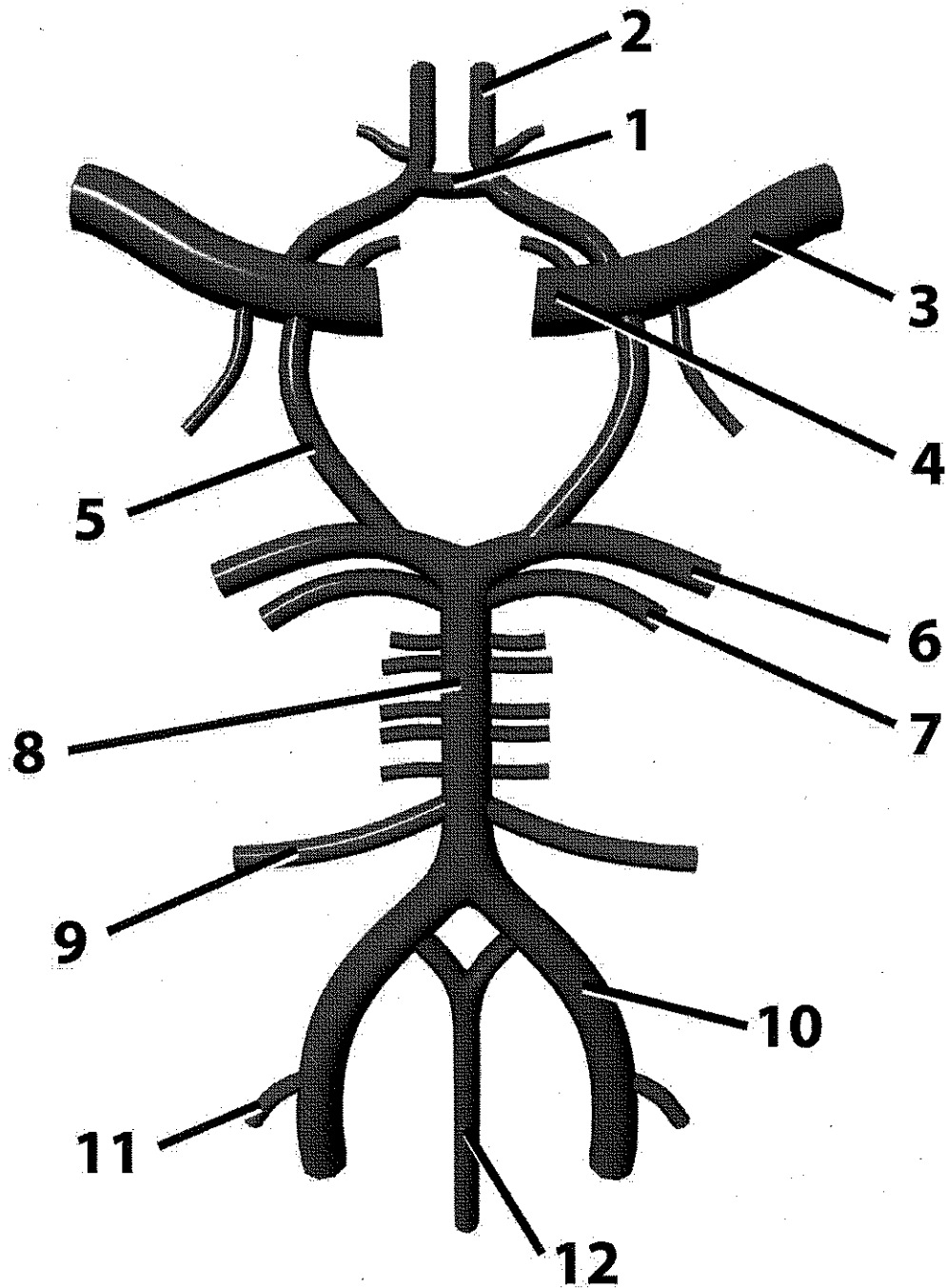
Rapid Review/Preview #16

What is the first-line treatment for pediculosis pubis and pediculosis capitis?	
Which immunodeficiency would you suspect in a patient with recurrent infections, thrombocytopenia, and eczema?	
What causes a child to have mental retardation, microcephaly, microphthalmia, short palpebral fissures, midfacial hypoplasia, and cardiac defects?	
An 18-year-old female with no history of abnormal pap smears now has a first time ASCUS pap. How should this be managed?	
What are the management options of a first time ASCUS pap in a non-adolescent?	
What is the treatment for a clavicle fracture?	
A 40-year-old female has persistent erythema on her nose and cheeks and recurrent facial flushing especially with alcohol and spicy foods. What is the diagnosis?	
A patient with cirrhosis presents again to the ER to have his ascites drained. Analysis of the ascites fluid reveals an absolute neutrophil count greater than 250 cells/mm ³ . What is the diagnosis?	
Otосcopy in a child presenting with acute onset of ear pain reveals large, reddish vesicles on the TM. What is the diagnosis, typical organism, and treatment?	
What is the treatment for a pilonidal cyst?	
What is the treatment for a rectal fistula?	
A patient on isotretinoin for acne begins to develop daily, persistent, pulsatile headaches. Exam reveals papilledema. What is the diagnosis?	
An 18-year-old male is found to have a systolic heart murmur heard at the apex and left lower sternal border that increases in intensity while standing after squatting. What diagnosis do you suspect?	
What disorder classically presents with the triad of cognitive impairment, urinary incontinence, and abnormal gait?	
What is the underlying cause of late fetal decelerations on contraction stress test?	
A middle-aged man presents for knee pain and X-ray reveals bilateral calcifications of the articular cartilage. What is the treatment?	
What is the next step in the management of a positive PPD?	
A 25-year-old male is diagnosed with a solid testicular mass by ultrasound. What is the next step in the management?	
A teenager on antibiotics for acne presents with a severe sunburn. What antibiotic is he most likely taking?	
What is the next step in the management of a female with poor uterine tone after delivery of the placenta?	

Neurology Part 1

Normal Neurologic and Neurovascular Function (SU2 p169 – SU2 p171)

Self-Study: Label the Circle of Willis diagram below, and check your answers on SU p170.



Neurologic Infection SU2 p169 – SU2 p174)

Bacterial Meningitis (SU2 p169)

1. What are the common organisms and empiric IV antibiotics choices for bacterial meningitis based on age of patient?

Age Range	Organisms	Empiric Antibiotics
< 1 month of age		Preferred medications: 1) ampicillin + 2) cefotaxime or gentamycin
1 month to 60 years of age		Adult dosing shown here: 1) cefotaxime or ceftriaxone 2) vancomycin 3) dexamethasone IV q6hrs x4d (if over 6m of age)
> 60 years, alcoholism, or debilitating comorbidities		1) ampicillin (Listeria coverage) 2) cefotaxime or ceftriaxone 3) vancomycin 4) dexamethasone IV q6hrs x4d

2. What is the rationale for dosing dexamethasone prior to or along with the first dose of antibiotics for empiric treatment of bacterial meningitis?
- Dexamethasone when given with or prior to the first dose of antibiotic reduces the risk of _____ in children with meningitis, especially in the cases of _____.
 - In adults with bacterial meningitis, dexamethasone reduces both morbidity and mortality especially in the case of _____.

Viral Meningitis (SU2 p170)

3. What is the treatment for viral meningitis?

- Acetaminophen for pain
- IV Fluids as needed
- Empiric antibiotics until _____
 - If younger than 3 years, severely ill, or immunocompromised, continue empiric antibiotics until bacterial culture results confirm nonbacterial etiology
- _____ if suspicion of HSV or signs of encephalitis such as focal neurologic findings
 - Discontinue if HSV PCR and cultures are negative or alternative diagnosis is made

Encephalitis (SU2 p171)

4. West Nile Virus

- Birds are the reservoir, and mosquitoes are the vectors. Humans, horses, and dogs are incidental hosts
- Sx: usually only headache, malaise, back pain, myalgia, and anorexia for 3-6 days ("flu-like")
- Severe Sx in 1/150: meningitis +/- encephalitis including muscle weakness and flaccid paralysis (via anterior-horn involvement), alterations in consciousness, possibly death
- Dx: _____
- Treatment: _____

5. Reye Syndrome Treatment

- Discontinue salicylate (e.g., aspirin)
- Hospitalization (usually ICU) for cardiorespiratory monitoring (+/- mechanical ventilation), supportive care, fluid and electrolyte management
- Maintain euglycemia: accuchecks, IV dextrose or insulin as needed
- Maintain isovolemia: IVF or Lasix as needed, Foley catheter for strict I/Os
- Reduce brain swelling: avoid hypo-osmotic fluids, elevate head of bed, +/- corticosteroids, +/- ICP monitor
- If seizures → phenytoin

Headache (SU2 p174)

1. What are the differences in the acute treatment of tension headaches, cluster headaches, and migraine headaches?

Type of Headache	Treatment
Tension headache	NSAIDs (Ketorolac 60mg IM)
Cluster headache	100% O ₂ (6+ L/min on non-rebreather for 20+ min) and sumatriptan or dihydroergotamine (DHE 45)
Migraine headache	Sumatriptan (or other triptan), dihydroergotamine (DHE 45), NSAIDs, and/or antiemetics (chlorpromazine, prochlorperazine, metoclopramide) in varying combinations based on severity, nature of symptoms, and patient's history

2. What agents can be used for prophylaxis of migraine headaches?

- _____ : verapamil (often first-line b/c safe and well tolerated)
- _____ : propranolol, metoprolol (good choice if comorbid hypertension)
- _____ : amitriptyline, nortriptyline (good choice if comorbid depression, insomnia, pain syndrome)
- _____ : naproxen (good choice if menstrual migraine or comorbid osteoarthritis or other pain that could benefit from NSAIDs)
- _____ : valproic acid (good if history of bipolar disorder), topiramate, gabapentin

3. What is the most likely cause of headache based on the following description: (very high-yield!)

Made worse by foods containing tyramine	
Obese female with papilledema	
Jaw muscle pain when chewing	
Periorbital pain with ptosis and miosis	
Photophobia and/or phonophobia	
Bilateral frontal/occipital pressure	
Lacrimation and/or rhinorrhea	
Elevated ESR	
"Worst headache of my life"	
Headache + extraocular muscle palsies	
Scintillating scotomas prior to headache	
Headache occurring either before or after orgasm	
Responsive to 100% oxygen supplementation	
Trauma to the head → headache begins days after the event, persists for over a week and does not go away	

4. What headache symptoms would lead you suspect a brain tumor as a cause of a headache?
- Mild headache which progressively worsens over days to weeks
 - New onset after age 50
 - _____; worsened by a bending, lifting, cough, or Valsalva maneuver (= ↑ in intracranial pressure)
 - Associated seizures, confusion, altered mental status
 - Abnormal neurologic signs and symptoms (i.e., focal numbness or weakness)
 - Disturbs sleep or present immediately upon awakening
 - Vomiting precedes headache
 - Known systemic illness (i.e., cancer, HIV, or collagen-vascular disorder)

Pseudotumor Cerebri (not in SU2)

5. What are the characteristic features of pseudotumor cerebri?
- Young, obese female
 - Headaches – daily (worse in the morning). pulsatile, possible nausea/vomiting, possible retroocular pain worsened by eye movement
 - _____
 - Most worrisome sequela is vision loss
 - CT scan: _____
 - CSF pressure elevated (_____ in non-obese patient, _____ in obese patient)
6. What treatment options are available for managing pseudotumor cerebri?
- Confirm absence of other pathology with CT and MRI of the head (r/o central venous thrombosis)
 - Discontinue any inciting agents (e.g., _____)
 - _____ in obese patients
 - _____ – first line (start 250mg qid or 500mg bid → increase to 500mg qid to 1000mg qid)
- Invasive Treatment Options
- Serial lumbar punctures
 - Optic nerve sheath decompression
 - Lumboperitoneal shunting (CSF shunt)

End of Session Quiz – Neurology Part 1

1. Which spinal cord lesion matches the following description? (SU2 p172)
 - Fasciculations but also spastic paralysis
 - Impaired proprioception + pupils do not react to light
 - Bilateral loss of pain and temp below the lesion + hand weakness
 - Bilateral loss vibration sense + spastic paralysis of legs then arms
 - Bilateral loss of pain/temp below lesion + bilateral spastic paralysis below lesion + bilateral flaccid paralysis at the level of the lesion
2. What are the characteristic features of Brown-Sequard syndrome? (SU2 p172)
3. HYQ: Most likely cause of headache in a 40-year-old woman with frontal headache that is made worse by bending over?
4. HYQ: What would be the preferred antihypertensive in a patient with chronic hypertension and recurrent migraines?
5. HYQ: What medication should be given to close contacts of those with either meningococcal or HIB meningitis?
6. HYQ: What are the four most common sequelae of meningitis in children? (SU2 p170)
7. What is the treatment for fungal meningitis? (SU2 p170)
8. What medications are used in combination in the treatment of TB meningitis? (SU2 p170)
9. What cerebral artery infarct can cause aphasia? (SU2 p170)
10. What organism is responsible for bacterial meningitis given the following findings on CSF examination?
 - Gram-positive diplococci
 - Gram-negative diplococci
 - Small pleomorphic gram-negative coccobacilli
 - Gram-positive rods and coccobacilli

Neurology Part 2

Cerebrovascular and Hemorrhagic Diseases (SU2 p174 – SU2 p179)

1. What is the anticoagulant of choice in a patient with a history of stroke or TIA given the following scenario?

- First TIA →
- TIA/stroke due to atrial fibrillation →
- TIA/stroke + coronary artery disease →
- Repeat TIA/stroke while on aspirin →

Carotid Artery Disease

2. What are the classic signs and symptoms of carotid artery stenosis?

- _____
- Transient ischemic attacks (TIAs)
- Reversible ischemic neurologic deficits lasting up to 3 days
- Amaurosis fugax (transient unilateral blindness)
- Cerebrovascular accidents (CVAs)
- (_____ are not caused by carotid artery stenosis)

3. What are the surgical indications for carotid endarterectomy?

- Symptomatic carotid stenosis _____ - strong benefit
- Symptomatic carotid stenosis _____ - marginal benefit (more benefit in men and if performed within 2 wks of stroke/TIA)
- Asymptomatic patients with _____ stenosis who are expected to live longer than 5 years by a surgeon with a perioperative complication rate of less than 3% (some books will mention a blanket >60% and asymptomatic rule, but this varies by surgeon and patient)

4. What are the important nonsurgical treatments for carotid artery stenosis?

- HTN control to < 140/90
- Dyslipidemia control to LDL < 100 mg/dL, HDL > 35 mg/dL, triglycerides < 200 mg/dL
 - Lipid control with statins reduces stroke while other lipid lowering drugs do not
 - Niacin reduces carotid artery intima thickness
 - AHA diet
- DM control to fasting glucose < 126 mg/dL and HbA1C < 7%
- Smoking avoidance, consider varenicline (Chantix)
- Increased physical activity to at least 30-60 minutes 4 times weekly
- Alcohol consumption up to 2 drinks daily is beneficial. Avoidance of heavy drinking
- Evaluation for CAD and PAD
- _____ (if history of TIA/stroke while on aspirin → use Aggrenox or clopidogrel instead)

Stroke (SU2 p175)

5. What are the 5 main lacunar syndromes that may arise from a lacunar infarct? (SU2 p176) (high-yield)

- _____ (most common, about 50% of lacunar strokes) – weakness of the face, arm, and leg on one side of the body + absent sensory or cortical signs (aphasia, neglect, apraxia, hemianopsia)
- _____ – sensory defect (numbness) of the face, arm, and leg on one side of the body + absent motor or cortical signs
- _____ – ipsilateral weakness and limb ataxia out of proportion to the motor defect, possible gait deviation to the affected side + absent cortical signs
- _____ – weakness and numbness of the face, arm, and leg on one side of the body + absent cortical signs
- _____ (least common) – facial weakness, dysarthria, dysphagia, and slight weakness and clumsiness of one hand + absent sensory or cortical signs

Subarachnoid hemorrhage (SAH) (SU2 p177)

6. What is the treatment for a subarachnoid hemorrhage?

- Discontinue all anticoagulants and reverse any anticoagulation
- Systolic blood pressure < _____ only if cognitive function is intact (adequate cerebral perfusion pressure) until the aneurysm is clipped or coiled to prevent rebleeding. If the cerebral perfusion pressure is not adequate then lowering the BP will increase the risk of infarction.
 - _____ preferred
 - Avoid _____ which can increase intracranial pressure
- _____ (a CCB) to prevent vasospasm
- Prevent physiologic derangements that may worsen brain injury
 - Avoid hypoxia and hyperglycemia
 - Maintain a normal pH, euolemia, and normothermia
- (Phenytoin for seizure prophylaxis is controversial and generally avoided due to poorer outcomes.)
- Ventriculostomy to monitor intracranial pressure in select patients
- Surgical _____ into aneurysm

Seizure Disorders (SU2 p179 – SU2 p182)

1. Which medications or medication withdrawal are known for causing seizures?
2. What seizure medications are used for prevention of the following types of recurrent seizures?

Seizure type	Initial treatment of choice
Grand mal (tonic-clonic)	valproate, carbamazepine, phenytoin, lamotrigine, topiramate
Partial	_____ > valproate, topiramate
Absence	
Myoclonic	

3. Which seizure medication matches the following description? (SU2 p181)
 - Gingival hyperplasia
 - Drug of choice for absence seizures
 - Second choice for absence seizures
 - Drug of choice for trigeminal neuralgia
4. Which drugs are known for causing Stevens-Johnson syndrome?
5. Which drugs are known for inducing the cytochrome P450 system thereby speeding-up the metabolism of other drugs such as OCPs and warfarin?
BCG PQRS –

Pediatric Neurologic Issues (SU2 p189 – SU2 p191)

6. Arnold-Chiari Malformation (AKA Chiari Malformation)
 - Downward displacement of the cerebellar tonsils and medulla through the foramen magnum
 - Type I is the most common type and is often asymptomatic. Manifestations may include headaches and/or cerebellar symptoms.
 - Type II (of IV severity) is usually accompanied by other neurologic anomalies.
7. What other neurologic anomalies are associated with an Arnold-Chiari malformation? →

Cerebral Palsy (SU2 p190)

8. What are some of the possible presenting features of cerebral palsy?
 - Spastic features – spastic paresis of any or all limbs, clonus present
 - Athetosis features – slow, writhing movements in distal muscles
 - Chorea features – rapid, irregular, unpredictable contractions of muscles in face or extremities
 - Dystonic features – uncontrollable jerking, writhing, or posturing
 - Infants have persistence of primitive reflexes, involuntary grimacing, tendency to drool, and delayed psychomotor development.
 - Ataxia – difficulty coordinating purposeful movements
 - Atonic features – severe hypotonia present at birth with no future ability to stand or walk
 - Neonates may show signs of encephalopathy including lethargy, decreased spontaneous movement, hypotonia, and suppressed primitive reflexes.
 - Associated disorders: mental retardation, epilepsy, sensory impairment (speech, hearing, vision)

End of Session Quiz – Neurology Part 2

1. How long must a focal neurologic deficit last to qualify as a stroke?
2. In what timeframe must thrombolytic therapy be instituted in cases of ischemic stroke?
3. HYQ: What is the treatment for an epidural hematoma or subdural hematoma?
4. HYQ: Most common predisposing condition for an intracranial hemorrhage?
5. HYQ: What is the principle cause of a lacunar infarct?
6. HYQ: CT scan of the head shows a crescent-shaped lesion. What event most likely caused this lesion?
7. HYQ: What is the preferred treatment for febrile seizures?
8. HYQ: A patient with a DVT develops a stroke. What study would most likely identify the underlying etiology of the stroke?

9. What neurologic defects would be seen with an infarction of the following arteries? (SU2 p176)

Anterior cerebral artery	
Middle cerebral artery	
Posterior cerebral artery	
Lacunar arteries	
Basilar artery	

10. What are the 5 main lacunar syndromes that may arise from a lacunar infarct?
11. An aphasic patient has great trouble producing words but understands everything you say. What type of aphasia does he most likely have?
12. Although benzodiazepines are used to end a seizure in status epilepticus, what is of more concern in the initial treatment?
13. What is the treatment for subarachnoid hemorrhage? (SU2 p177)

Neurology Part 3

Degenerative Neurologic Disorders (SU2 p182 – SU2 p184)

Parkinson's (SU2 p182)

1. What medications are used in the management of Parkinson's symptoms?
 - Levodopa + carbidopa
 - _____ (MAO-B inhibitor) used in early disease and has neuroprotective effects.
 - Dopamine agonists:
 - _____ (ergot compound)
 - Non-ergot D3 stimulators – pramipexole, ropinirole, rotigotine (transdermal)
 - Apomorphine (subQ) – rescue therapy for sudden akinetic episodes
 - _____ to potentiate levodopa: entacapone, tolcapone
 - _____ for tremor: trihexyphenidyl, benzotropine
 - _____ to increase dopamine release. Used as short-term monotherapy in mild disease.

ALS (SU2 p182)

2. What are the characteristic features of amyotrophic lateral sclerosis (ALS, Lou Gehrig's disease)?

Weakness but with normal sensation:

 - Initial presenting symptoms:
 - _____ (80%) in hands/fingers, shoulder girdle, foot drop, or pelvic girdle
 - _____ (20%)
 - Upper motor neuron si/sx: movement stiffness, slowness, and incoordination; spasticity and hyperreflexia (spastic paralysis); slowed rapid alternating movements; gait disorder
 - Bulbar UMN si/sx: dysarthria; dysphagia; pseudobulbar affect (PBA) with inappropriate laughing, crying, or yawning
 - Lower motor neuron si/sx: weakness, gait disorder, reduced reflexes (flaccid paralysis), muscle atrophy and fasciculations
 - Cognitive defects: frontotemporal executive dysfunction
 - Neuromuscular respiratory failure after months to years (average survival from time of diagnosis is 3-5 yrs)

Huntington's (SU2 p183)

3. What are the C's of Huntington's chorea?
 - CAG repeat disorder on chromosome Cuatro (4)
 - Caudate and putamen atrophy on MRI
 - Acetylcholine decrease
 - GABA decrease
 - Crazy (dementia)
 - Choreoform movements
 - Cuarenta (40) = age of onset

Dementia (SU2 p183)

4. What are the unique features of dementia caused by Pick's disease?
5. What are the unique features of Lewy body dementia?
6. What are the usual components of a "dementia work-up"?

Peripheral Neurologic and Neuromuscular Disorders (SU2 p184 – SU2 p185)

Bell's Palsy (not in SU2)

7. What is required to make the diagnosis of Bell's palsy?

Clinical diagnosis:

- Diffuse involvement of the entire facial nerve → facial muscle paralysis (upper and lower)
 - Rule out Lyme disease by _____: tick bite, heart block, arthritis, vertigo, hearing loss
 - Rule out otitis media by _____
 - Rule out stroke by _____
- Acute onset (1-2 days) → progressively worsening weakness for 3 weeks → recovery within 6 months
- Anything other than the above presentation requires imaging (CT and/or MRI) and screening blood tests to rule out other pathology

8. What is the treatment for Bell's palsy?

- Eye care to prevent corneal trauma
 - Artificial tears hourly while awake
 - Lubricating ointment qHS
 - Patch covering the eye at night
- Glucocorticoids (e.g., prednisone 60mg daily x 1 week)
- +/- Valacyclovir 1000mg tid x 1week (acyclovir provides no additional benefit over glucocorticoids)

Guillain-Barré syndrome (SU2 p184)

9. What is the classic presentation of Guillain-Barré syndrome (GBS)?

- Symmetric muscle weakness that progresses over days to 4 weeks (usually 2 weeks)
 - Usually beginning in the distal legs but may begin in the arms or facial muscles in 10% of cases
 - _____ requiring mechanical ventilation in _____ of cases
 - _____ and/or oropharyngeal weakness in _____ which may include bilateral facial muscle paralysis
- Autonomic dysfunction in 70% - usually _____
- Absent or depressed deep tendon reflexes
- Little if any change in sensation
- No fever at the onset of symptoms
- GBS may be preceded by Campylobacter jejuni diarrheal illness (about 20% of cases), HIV infection, CMV or EBV infection, Mycoplasma infection, other viral infections, or immunization (extremely rare)

10. How is the diagnosis of Guillain-Barré syndrome made in a patient with ascending muscle paralysis?

- Characteristic clinical presentation
- CSF analysis: _____ (elevated protein and normal WBCs)
- Electrodiagnostic studies: nerve conduction studies and electromyography (EMG) reveal _____

11. What is the prognosis of a patient with Guillain-Barré syndrome?

- Spontaneous regression and complete recovery by 1 year in 80-90%
- Relapse in 10%
- Prolonged disease with delayed or incomplete recovery in 5-10%
- Death despite ICU care in 5%

(Guillain-Barré Treatment on next page)

12. What is the treatment of Guillain-Barré syndrome?
 - Hospitalization for respiratory monitoring including vital capacity, BP monitoring, cardiac monitoring (telemetry), and daily abdominal auscultation for ileus
 - Mechanical ventilation required in 30% of pts.
 - ICU monitoring for autonomic dysfunction required in 20% of patients
 - _____
 - Equally effective at shortening time to independent walking by 50%
 - Combining the two offers no additional benefit
 - (_____ are NOT recommended in the treatment of GBS. Previously the mainstay of therapy; new studies show absolutely no benefit.)
 - If neuropathic pain (40-50%) → gabapentin or carbamazepine
 - If ileus → erythromycin or neostigmine
 - If hypotensive episodes → fluids +/- phenylephrine (avoid drugs with hypotensive SE)
 - Physical therapy for rehabilitation
13. HYQ: What causes slowing of nerve conduction velocity? →
14. HYQ: What causes fasciculations and fibrillations at rest on EMG? →
15. HYQ: What causes a silent EMG at rest (no muscle activity) and a decrease in the amplitude of muscle contraction on stimulation? →

Sleep and Loss of Consciousness (SU2 p187 – SU2 p189)

Sleep (SU2 p187)

16. Compare changes in sleep patterns of the elderly to the changes in sleep patterns seen in depressed patients?
17. What are the differences between nightmares and night terrors?
 - Nightmares – during REM sleep, patients that appear to wake-up are actually awake
 - Night terrors – during non-REM sleep, patients that appear awake (and are frightened/screaming, tachycardic, and diaphoretic) are actually not fully awake, difficult to arouse, and usually fall right back to sleep after the episode
18. What is Pickwickian syndrome?

Obesity hypoventilation syndrome (OHS) characterized by: hypersomnolence, dyspnea, hypoxemia (resulting in cyanosis, polycythemia, and plethora), and pulmonary hypertension (leading to right-sided heart failure → peripheral edema)
19. What is required to make the diagnosis of narcolepsy?
 - _____ (sudden loss of muscle tone) only occurs in narcolepsy and is virtually diagnostic when present
 - Other causes of excessive daytime sleepiness are ruled-out
 - Overnight polysomnogram (to r/o OSA and periodic limb movement disorder)
 - Rule out sedating medications as a cause
 - Multiple Sleep Latency Test – when given 4-5 opportunities to nap every 2 hours, narcolepsy patients fall asleep in less than 8 minutes
20. What is the treatment for narcolepsy?
 - Avoidance of drugs that cause sleepiness
 - Scheduled naps (once or twice a day for 10-20 minutes)
 - Stimulants – _____ is first-line
 - Support group attendance
 - If cataplexy → venlafaxine, fluoxetine, or atomoxetine

21. What medications are common in the treatment of insomnia? What makes each one unique?

Melatonin	Non-addictive, OTC, vivid dreams, safe for < 3 months
Valerian	OTC herbal remedy, studies show no benefit
Antihistamines (Benadryl, Tylenol PM, doxylamine)	Commonly used by patients first-line, a/w poor sleep quality, not for long-term use, anticholinergic side effects (avoid in the elderly)
Trazodone	Antidepressant, decreases sleep latency, small risk of priapism
TCA's such as amitriptyline, doxepin	Antidepressant, small risk of arrhythmias (obtain EKG prior to use), anticholinergic side-effects (avoid in the elderly)
Long acting benzos such as temazepam, lorazepam, clonazepam, diazepam, chlordiazepoxide	Addictive, short-term only (< 35 days)
Zolpidem (Ambien), Zaleplon (Sonata)	Act at the benzo receptor, short-term only (< 35 days), rebound insomnia when discontinued
Eszopiclone (Lunesta)	May be used long-term (FDA 2004)
Ramelteon (Rozerem)	Non-addictive because it works at melatonin receptors instead of GABA/benzo receptors, avoid if hepatic insufficiency, long-term studies are lacking

22. Restless Leg Syndrome:

- The sensation of unpleasant paresthesias that compels the patient to have voluntary, spontaneous, continuous leg movements that temporarily relieve the sensations. The discomfort worsens at rest, in the evening, and/or during sleep. Sensation of "spiders or ants" on/in feet/calf muscles.
- Usually a primary, idiopathic disorder
- Secondary RLS can result from iron deficiency, end-stage renal disease, diabetic neuropathy, Parkinson's disease, pregnancy, rheumatic diseases (RA), varicose veins, caffeine intake,...
- Treatment: pramipexole or ropinirole qHS (or levodopa/carbidopa), iron replacement, avoid caffeine, clonazepam qHS, gabapentin, opioids

Syncope (SU2 p188)

23. Syncope Basics

Causes (decreased cerebral perfusion)

- Reflex syncope
 - Vasovagal: a/w emotional stress, trauma, pain, sight of blood, prolonged standing
 - Situational: a/w micturition, defecation, coughing, GI stimulation
- Carotid-sinus hypersensitivity: a/w head-turning, shaving, tight collar
- Cardiogenic: a/w exertion, palpitations, chest pain, SOB
- Orthostatic
- Cerebrovascular: a/w prolonged LOC, seizures, neuro deficits
- No cause will be found in at least 20% of patients. If hospitalized previously for syncope and no cause was found, then less than 15% chance of identifying cause on subsequent hospitalizations

Work-up Basics:

- r/o orthostatic hypotension via Tilt test on multiple occasions (i.e., 30 minutes after meals, 0200, before and after BP meds given)
- r/o seizure by H&P
 - More likely seizure: hx of seizure, prodrome of déjà-vu, postictal confusion, tongue lacerations
 - More likely syncope: prodrome of lightheadedness or sweating, history of prolonged standing
 - Nonspecific: brief limb jerking (15% of syncope patients), urine incontinence
- CBC, electrolytes, BUN/Cr, glucose, assess volume status, pulse ox, EKG, evaluation of medications
- In patients over 40 (without h/o carotid disease or carotid bruits) r/o carotid sinus hypersensitivity with carotid sinus massage while on tele monitor. Massage one carotid at the angle of the jaw with circular motion for about 5 seconds. Perform supine then with head of bed elevated. Positive test if symptoms reproduced, SBP falls > 49 mmHg, or asystole >3 seconds

Also consider:

- Serial CEs and EKGs x3 (esp. if > 45 years old, DM, smoker, prior MI, or > 2-3 risk factors)
- Echo (esp. if murmur, exertional syncope, or h/o heart dz)
- Cardiac stress test
- Bilateral carotid duplex (esp. if > 65 years old, CAD, PVD, or bruit)
- 24 hour Holter monitor (esp. if abnormal EKG, palpitations, heart dz, or FH of sudden death)
- CT head without contrast, EEG (esp. if neurologic symptoms, new seizure, HA)

Coma (SU2 p188)

24. What is the differential diagnosis for a patient presenting to the ER for loss of consciousness?

AEIOU TIPS:

25. What should you think about for initial empiric therapy in a patient coming into the ER with loss of consciousness? (SU2 p189)

26. Why is thiamine given in a glucose infusion to alcoholics with hypoglycemia?

Glucose administration in the absence of thiamine can theoretically exacerbate damage to the mammillary bodies and worsen _____.

End of Session Quiz -- Neurology Part 3

1. HYQ: Lung cancer accompanied by muscle weakness is indicative of what?
2. HYQ: A 66-year-old woman with forgetfulness and decreased bilateral parietal lobe activity on PET scan has what form of dementia?
3. HYQ: What is the most sensitive test for multiple sclerosis?
4. HYQ: What medication decreases the frequency of relapses in patients with multiple sclerosis?
5. HYQ: A 35-year old woman presents with ptosis and diplopia that worsens throughout the day. What is the underlying problem? (SU2 p184)
6. HYQ: What is the mechanism of action of the preferred medication in the treatment of restless leg syndrome?
7. What EEG waveforms correspond to the different stages of sleep? (B&W p364)
 - Stage 1
 - Stage 2
 - Stage 3 & 4
 - REM
8. What is the next step once a brain tumor has been identified on CT or MRI of the head? (SU2 p187)
9. What are the treatment options for benign essential tremor? (SU2 p186)
10. What medications are used in the treatment of Alzheimer's disease? (SU2 p183)
11. What test is used to confirm the most common cause of syncope?

Neurology Part 4

Ophthalmology (SU2 p191 – SU2 p194)

1. Describe what light reflexes will be seen in both eyes if the right optic nerve is damaged prior to the pretectal nucleus (AKA afferent defect).
 - No constriction of either the left or right eye when light is shone in the right eye
 - Both pupils constrict if the light is shone in the left eye
2. Describe what light reflexes will be seen in both eyes if the right oculomotor nerve is damaged (AKA efferent defect).
 - Right eye will not respond to light shone in either the right or left eye
 - Left eye will constrict when a light is shone in either eye

Vision Abnormalities (SU2 p193)

3. What is amblyopia and what are the signs/symptoms?
 - Decreased vision due to a disruption in the normal development of vision usually from strabismus, cataracts, or refractive error prior to age 10.
 - Possible presentations: esotropia (inward deviation), exotropia (outward deviation), diplopia, and/or refractive error not correctable with lenses
4. What is the most common cause of blindness in the following populations of adults in the US?
 - over age 55
 - under age 55
 - blacks of any age

Eye Infections, Conjunctivitis, and Red Eye (SU2 p191)

5. What are the distinguishing features of bacterial, viral, and allergic conjunctivitis?

Etiology	Type of Discharge	Other Features
Bacterial	Purulent, copious, 24hrs a day	
Viral (adenovirus)	Watery, eyelid may be sealed in am	May also have fever, URI, LAD, pharyngitis
Allergic	Bilateral, watery, eyelid maybe sealed in am	Pruritis, other allergy symptoms

6. What causes of red eye most closely matches the following statements:
 - May indicate a collagen-vascular disorder
 - Potential serious complication of corneal ulceration
 - Colored halos
 - Itching eye
 - Preauricular lymph node enlargement
 - "Dry eyes"
 - Shallow anterior chamber
7. What is the most likely cause of conjunctivitis appearing in the first 24 hours of life?
8. What are the classic features that distinguish orbital cellulitis from periorbital cellulitis?
9. What is the treatment for orbital cellulitis?
 - Immediate IV vancomycin + IV cefotaxime (or ceftriaxone) until afebrile and clinically improved (3-5days) then oral antibiotics (based on sensitivity) for 2-3 weeks.
 - Consult Ophthalmology and ENT for recommendations and consideration for need of surgical debridement.

10. What are the distinctions between a chalazion, hordeolum, and anterior blepharitis? What is the treatment for each?

Disease	Description	Treatment
Chalazion	Inflammation of internal Meibomian sebaceous glands (eyelid swelling)	Usually self-limiting but can be treated with surgical excision and/or intralesional steroid injection
Hordeolum (stye)	Infection of external sebaceous glands of Zeiss or Mol (tender, red swelling at the <u>lid margin</u>)	- Hot compress 3-4 times a day for 10-15 minutes - If unresolved in 48 hours, then I&D - +/- antibiotic ointment q3 hours
Anterior blepharitis	Infection of eyelids and lashes secondary to seborrhea (red, swollen lid margins + dandruff on lashes)	- Wash lid margins daily with shampoo - Removal scales daily with cotton ball - Antibiotic ointment qd to lid margins

Cataracts (SU2 p193)

11. What is the classic presentation of a patient that has a cataract?

- Painless, progressive decrease in vision manifested with difficulty driving at night, reading road signs, or reading fine-print
- Usually bilateral, but often unilateral
- Near-sightedness is often an early manifestation
- Possible disabling glare in bright sunlight or from oncoming headlights (more likely with steroid induced cataracts)

Glaucoma (SU2 p193)

12. What is the treatment for acute angle-closure glaucoma?

Initial Medications:

- Pressure lowering eye drop regimen: 1 drop each one minute apart of 0.5% timolol (Timoptic), 1% apraclonidine (Iopidine), and 2% pilocarpine (Isopto Carpine)
- Acetazolamide 250mg two tabs once
- If refractory to above combination

- _____ given IV once diagnosis confirmed by Ophthalmologist

Surgical intervention

- Laser peripheral iridotomy – tiny hole is made in the periphery of the iris so that aqueous humor can flow into the anterior chamber

Other Ocular Pathologies

13. What is the treatment for a corneal abrasion?

- Thorough eye exam with removal of any foreign body by irrigation
- Topical antibiotics QID continued 3-5 days or until the eye is symptom free for 24 hours (ointment > drops) – erythromycin, sulfacetamide, ciprofloxacin, or ofloxacin
- OTC lubricant (Refresh PM, Lacrilube) as needed up to hourly
- Pressure patching for < 24 hours is optional, but generally not necessary, and contraindicated if a foreign body is present. There is no role for pirate patching.
- Pain control with systemic opioids (e.g., Tylenol #3) or ophthalmic NSAIDs (e.g., diclofenac, ketorolac)
- NEVER prescribe a topical anesthetic (OK to use during the initial exam) or topical steroids!
- 24hr follow-up for contact lens abrasion, abrasion ≥ 3mm, or abrasion with diminished vision.

14. What disease would you suspect in a 35-year-old-female with new-onset rapid loss of vision and pain when moving the eye? How would you treat this?

15. What eye abnormalities might be seen in a patient with vitamin A deficiency?

- Night blindness or complete blindness
- Xerophthalmia
- Bitot's spots (areas of abnormal squamous cell proliferation and keratinization of the conjunctiva)

Audiovestibular Disorders (SU2 p194 – SU2 p195)

Acute Otitis Media (SU2 p194)

1. When is observation without antibiotics appropriate for a child with acute otitis media?

According to 2004 AAP/AAFP guidelines you may refrain from antibiotics and simply observe if:

- Age 6 months-2 years + the diagnosis is questionable + illness is not severe + appropriate follow-up available + antibiotics can be started promptly if symptoms worsen
 - Age \geq 2yrs + illness is not severe + appropriate follow-up available + antibiotics can be started promptly if symptoms worsen
- Antibiotics should be started if improvement is not noted in 48-72 hours

2. What are the classic signs and symptoms of bullous myringitis?

Bullous myringitis is a bullous/vesicular inflammation of the tympanic membrane that may occur in association with acute otitis media. It typically manifests as follows:

- More painful than usual acute otitis media
- Otoscopy: large, reddish vesicles on the TM

3. What is the treatment for bullous myringitis?

- _____ is a common organism \rightarrow treat with oral _____
- Topical analgesics

4. What are the diagnostic features of mastoiditis?

- Symptoms occur days-weeks after developing acute otitis media
- Erythema, edema, tenderness behind the ear
- External ear displaced
- Diagnosis made from CT scan of the mastoid process

5. Cholesteatoma:

- Overgrowth of desquamated keratin debris within the middle ear space that may eventually erode the ossicular chain and external auditory canal
- Causes: negative middle ear pressure (chronic retraction pocket) from eustachian tube dysfunction or direct growth of epithelium through a TM perforation
- Commonly a/w chronic middle ear infection
- PE: grayish-white "pearly" lesion behind or involving the TM, conductive hearing loss, vertigo
- Treatment: surgical removal usually involving tympanomastoidectomy and reconstruction of the ossicular chain

Acute Labyrinthitis

6. What are the distinguishing characteristics of acute labyrinthitis?

Acute onset of vertigo, nausea, vomiting, and nystagmus Auditory function preserved = vestibular neuritis
Hearing loss + above symptoms = labyrinthitis

- Single episode that lasts days to weeks (usually not longer than 2 weeks)
- Preceded by a viral URI
- Nystagmus: horizontal, suppressed with visual fixation, and has a fast phase away from the affected side
- Abnormal head thrust test: When examiner rapidly turns the patient's head to the affected side, the pt is unable to maintain visual fixation
- Gait instability but preserved ambulation
- Absence of focal neurologic defects

7. What is the treatment for acute labyrinthitis (vestibular neuritis)?
- Typically subsides spontaneously within weeks
 - Corticosteroid taper shown to improve recovery (e.g., methylprednisolone 22 day taper, start with 80mg and taper by 20mg q3 days then by 50% q3 days after 20mg reached)
 - Symptomatic treatment only in for the first 48 hours of illness
 - E.g., scopolamine patch, meclizine, metoclopramide, or promethazine
 - Long-term recovery is theoretically delayed if used long-term
 - Vestibular rehabilitation exercises
 - MRI if > 60 years of age, headache, focal neuro signs, vascular risk factors, or sustained vertigo inconsistent with acute labyrinthitis (vestibular neuritis)

Hearing Loss (SU2 p195, margin)

8. What is the most common cause of conductive hearing loss in adults? What is the most common cause of sensorineural hearing loss in adults?
- Conductive – otosclerosis
 - Sensorineural – presbycusis

Other Ear Disorders

9. What is the treatment for Ramsay Hunt syndrome?
- Ramsey Hunt syndrome is herpes zoster oticus and is treated as follows:
- Narcotic analgesia for pain relief
 - Oral steroids to decrease inflammation
 - Antiviral therapy with valacyclovir (highest efficacy), famciclovir, or acyclovir (lowest cost)

End of Session Quiz – Neurology Part 4

1. HYQ: A 10-year-old boy develops worsening arm and leg weakness over a period of 3 days that has now worsened to include symmetric facial muscle weakness. Deep tendon reflexes are absent, and sensation is intact. What is the diagnosis?
2. What would be the visual field defect for a lesion of the optic tract?
3. What is the pattern of vision loss in glaucoma vs. macular degeneration?
4. What is the easiest way to distinguish a hordeolum from a chalazion?
5. What is the differential diagnosis for dislocation of the lens of the eye?
6. What is the treatment for macular degeneration (MD)? What is the treatment for retinal detachment (RD)? (SU2 p194)
7. Explain how the Weber test can help distinguish conductive hearing loss from sensorineural hearing loss.
8. With which disorders might you see a cherry-red spot on the macula? (B&W p419)
9. What is the next step in the management of a patient that has sustained a chemical burn injury to the eye?
10. What is the treatment for closed-angle glaucoma?

Psychiatry Part 1

1. What neurotransmitter changes do you see with the following diseases?

- Anxiety disorders
- Depression
- Mania
- Alzheimer's
- Huntington's
- Schizophrenia
- Parkinson's

Mood Disorders (SU2 p279 – SU2 p282)

Major Depressive Disorder (SU2 p279)

2. At what point does grief/bereavement become pathological? (SU2 p279)

Grief becomes pathological when any of the following are found:

- Depression criteria met for at least 2 weeks after the first 2 months following the loss
- Generalized feelings of _____
- _____
- Distressing feelings do not diminish in intensity by _____
- Inability to move-on, trust others, and reengage in life by _____

3. What medical conditions can cause severe depression?

4. What medications are known for causing symptoms of depression in patients?

- Sedatives: alcohol, benzos, antihistamines
- Stimulant withdrawal
- _____ (antihypertensive often used for hypertension in pregnancy)
- First generation antipsychotics (such as haloperidol)
- Anti-nausea drugs including metoclopramide and prochlorperazine
- _____
- Insufficient thyroid replacement → hypothyroidism
- _____ (used in viral hepatitis treatment)

5. What scale can be used to determine a patient's risk for suicide?

SAD-PERSONS Scale

- Sex: Men are 3x more likely to complete suicide. Give 1 point for being male.
- Age: Suicide is more likely if <19 or >45. Give 1 point if age not between 19 and 45 years old
- Depression: Depression greatly increases risk. Give 1 point if mood is significantly depressed
- Prior attempts: Give 1 point for one or more prior attempts
- EtOH: Intoxication increases risk. Give one point if alcohol or drug dependent
- Rational thought process: Give 1 point for significant psychotic symptoms
- Support Lacking: Give 1 point if patient does not have significant sources of emotional and social support
- Organized plan: Give 1 point if patient articulates an organized plan for suicide (more than simple ideation or impulses)
- No spouse: Give 1 point if family support unavailable (can be family members other than spouse)
- Sickness: Give 1 point for other medical problems that are not well controlled and that are a source of distress

Guidelines for Action:

- | | |
|-------------|---|
| 0-2 points | - Outpatient follow-up, Assist with arrangements |
| 3-4 points | - Supervised/Supported outpatient follow-up; consider admission for some pts. |
| 5-6 points | - Consider hospitalization unless safe alternative can be arranged and verified |
| 7-10 points | - Generally will require hospitalization. May need commitment involuntary |

6. What are the symptoms of atypical depression? What medications work well for atypical depression?

7. What is the first-line treatment for seasonal affective disorder?

Antidepressants (SU2 p181)

8. Categorize the following antidepressants as either a SSRI, TCA, MAOI, NDRI, or SNRI.

nortriptyline, selegiline, bupropion, mirtazapine, fluvoxamine, doxepin, phenelzine, fluoxetine, clomipramine, imipramine, amitriptyline, nefazodone, milnacipran, desipramine, sertraline, venlafaxine, paroxetine, tranylcypromine, duloxetine, escitalopram, citalopram, trazodone

SSRI -

NDRI -

SNRI -

TCA -

MAOI -

tetracyclic -

9. Which drugs should not be taken with SSRIs because of the risk of Serotonin Syndrome?

10. What are the characteristic features of serotonin syndrome?

- _____ (anxiety, agitation, delirium, restlessness, disorientation)
- _____ (diaphoresis, tachycardia, hyperthermia, hypertension, vomiting, diarrhea)
- _____ (tremor, muscle rigidity, myoclonus, hyperreflexia)
- _____ – slow, continuous, horizontal eye movements
- Spontaneous or inducible clonus
- Babinski signs bilaterally

11. What is the treatment for Serotonin Syndrome?

- Discontinue all serotonergic agents → symptoms usually resolve in 24 hours
- Supportive care to normalize vital signs
 - Oxygen, IV fluids, cardiac monitoring
 - If medical treatment for tachycardia or hypertension is needed, use short acting agents (e.g., esmolol or nitroprusside)
- Sedation with _____
- If temp > 41.1° C → sedation, paralysis, and ET tube → mechanical cooling (e.g., ice, cooling blankets, misting fans)
 - paralysis should relieve the hyperthermia which is caused by muscle activity
 - there is no benefit in using antipyretics in this scenario
- If agitation despite benzos → _____
- After resolution of symptoms, assess need to resume serotonergic agent

12. What are the symptoms of serotonin withdrawal syndrome? Which SSRIs are well known for causing this when stopped abruptly?

- SSRI discontinuation syndrome is characterized by dizziness, nausea, fatigue, muscle aches, chills, anxiety, and irritability that begins within days of abrupt discontinuation and dissipates over 1-2 weeks.
- Worst offenders: _____

13. What evaluation should take place prior to the initiation of TCAs in children?

Because TCAs can cause arrhythmias, the following should be performed:

- Screen patient's history for _____
- Screen family history for sudden death prior to age 40, long QT syndrome, arrhythmias, and hypertrophic cardiomyopathy
- _____ prior to initiation and again when medication is optimized

14. What are the symptoms of overdose with tricyclic antidepressants (TCAs)?

- _____: tachycardia, hypotension, conduction abnormalities
- _____: sedation, obtundation, coma, seizures
- _____: mydriasis, xerostomia, ileus, urinary retention

15. How is TCA overdose managed?
- ABCs – Airway, Breathing, Circulation
 - Activated charcoal 1g/kg up to 50kg (unless ileus is present)
 - Continuous cardiac monitoring for at least 6 hours → if no problems, then clear for psych eval
 - Frequent neuro checks
 - Lab/Studies: TCA level, Chem 7, EKG
 - If ingestion < 2hrs ago → gastric lavage
 - If Hypotension → IVF (LR or NS) → if ineffective, then norepinephrine
 - If QRS > 100 msec → trial _____ then infusion if effective
 - If seizures → _____, barbiturates, and/or propofol (but not _____ which is ineffective against toxin-induced seizures)
16. What food substances should be avoided when taking MAOIs in order to avoid a tyramine induced hypertensive crisis?
- Foods that are spoiled, pickled, aged, smoked, fermented or marinated contain tyramine. The following foods should be avoided because of sufficient quantities of tyramine to be problematic while on MAOIs:
- Fermented cheeses (cream cheese and cottage cheese are OK)
 - Smoked or aged meats (sausage, bologna, pepperoni, salami, smoked or pickled fish)
 - Chianti, most beers and wines (especially over 120mL)
 - Soy sauce, shrimp paste, miso soup
 - Sauerkraut, avocados
 - Brewer's yeast and yeast extracts (yeast used in baking is OK)
17. In what group of patients is bupropion (Wellbutrin) contraindicated?
- Because of an increased risk of lowering the seizure threshold, bupropion should be avoided in patients with:
18. What are the indications for electroconvulsive therapy (ECT)?
- Severe debilitating depression refractory to antidepressants
 - Psychotic depression
 - Severe suicidality
 - Depression with catatonic stupor
 - Depression with food refusal leading to nutritional compromise
 - Situations where a rapid antidepressant response is required (e.g., pregnancy)
 - Previous good response to ECT
 - Medical condition preventing the use of antidepressants (e.g., elderly patients)
 - Bipolar disorder/mania
 - Schizophrenia/psychosis (esp. catatonic)

Bipolar Disorder (SU2 p281) and Cyclothymia (SU2 p282)

19. What are the potential side effects of lithium use in the treatment of bipolar disorder?

- _____
- _____ (hyper- or hypothyroidism, or euthyroid goiter)
- _____ (reversible on discontinuation) → thirst, polydipsia, polyuria
- _____ (nausea, vomiting, diarrhea, metallic taste changes, weight gain)

20. What is the treatment for nephrogenic diabetes insipidus caused by lithium toxicity?

21. How is depression managed in patients with bipolar disorder?

- Mild depression → _____
- Moderate depression → add a second mood stabilizer (lamotrigine) or add an atypical antipsychotic (olanzapine, quetiapine, or risperidone)
 - lamotrigine has significant drug interactions with valproate and carbamazepine
- Adding an antidepressant to a mood stabilizer does not have proven effectiveness (NEJM 2007;356:1711)
- Severe depression → consider _____

Adjustment disorder with depressed mood (SU2 p282)

22. What are the diagnostic criteria for adjustment disorder?

- Clinically significant emotional or behavioral reaction causing marked distress or impairment in social or occupational functioning
- Symptoms develop in response to an identifiable psychosocial stressor (e.g., divorce, failure at school, peer problems) other than bereavement
- Symptoms begin within _____ of the stressor
- Symptoms disappear within _____ of the disappearance of the stressor
 - If the stressor is chronic (e.g., ongoing parental conflict) then the disorder may last longer than 6m and is termed chronic

23. What is the difference between major depressive disorder and adjustment disorder with depressed mood?

Anxiety Disorders (SU2 p282 – SU2 p284)

Post-traumatic stress disorder (PTSD)

24. How is acute stress disorder different than posttraumatic stress disorder?

25. What are the treatment options for post-traumatic stress disorder (PTSD)?

- Psychotherapy including behavioral (exposure) therapy and cognitive therapy
- _____ – first line
- Other antidepressants – TCAs (imipramine, amitriptyline), MAOIs
- (Benzodiazepines should be avoided in PTSD due to lack of efficacy and potential for abuse)
- _____ (carbamazepine or valproate) improve impulsive behavior, arousal, and flashbacks
- _____ (prazosin) improves nightmares and sleep disturbance
- Atypical antipsychotics if refractory to other therapies

Psychotic Disorders (SU2 p284 – SU2 p286)

Schizophrenia (SU2 p284)

26. What are the diagnostic criteria for schizophrenia?

- At least 2 of the following during a one month period:
 - delusions (irrational belief that cannot be changed by rational argument)
 - hallucinations (most common type is auditory)
 - disorganized speech (e.g., frequent derailment or incoherence)
 - grossly disorganized or catatonic behavior
 - negative symptoms (e.g., flat affect, poverty of speech, lack of emotional reactivity)
(only one of the above is required if delusions are bizarre or hallucinations consist of a voice keeping a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other)
- Social / occupational dysfunction
- Duration of at least 6 months

27. What is the difference between the following disorders?

Schizotypal	
Schizophrenia	
Schizoaffective	
Schizoid	
Schizophreniform	
Brief psychotic disorder	

28. What might you see on neuroimaging of a patient with schizophrenia?

29. What is the difference between schizophrenia and delusional disorder?

30. What drugs are known to cause psychosis in patients?

Antipsychotic Medications and Side Effects (SU2 p285)

31. Categorize the following antipsychotics in the appropriate category as neuroleptics (low, moderate, or high potency) or atypical antipsychotics: olanzapine, thioridazine, quetiapine, molindone, chlorpromazine, haloperidol, fluphenazine, loxapine, risperidone, thiothixene, trifluoperazine, clozapine, aripiprazole, paliperidone, perphenazine, loxapine, droperidol

Neuroleptic (High potency) –

Neuroleptic (Low potency) –

Neuroleptic (Moderate potency) –

Atypical antipsychotic –

32. HYQ: A patient previously diagnosed with schizophrenia arrives at the Psych ER with a severe neck spasm that forces his head to be maintained in an unusual position. What is the treatment?

Acute dystonia (torticollis in this case) due to antipsychotics → Rx: _____

33. What features characterize tardive dyskinesia that may develop from the use of high potency typical neuroleptics?

34. In what time frame would you expect to see Parkinsonian symptom side-effects in a patient taking antipsychotics?

35. What are the signs and symptoms of neuroleptic malignant syndrome?

- Mental status change – initial symptom in most patients (agitated delirium with confusion rather than psychosis)
- Muscular rigidity +/- tremor
- Hyperthermia greater than 38-40° C
- Autonomic instability – tachycardia, labile or high blood pressure, tachypnea, diaphoresis
- Rhabdomyolysis appearing over 1-3 days

36. What is the treatment for neuroleptic malignant syndrome?

- Stop the offending medication
- Supportive care in the ICU
 - IVF
 - lower fever with cooling blankets, ice packs in the axilla, Tylenol
 - reduce hypertension with clonidine and/or nitroprusside (→ cutaneous vasodilation can facilitate cooling)
 - DVT prevention with heparin or Lovenox
 - for agitation, use benzos (clonazepam, lorazepam)
- _____ → prevents rigidity and hyperpyrexia by inhibiting calcium release
- Other possible therapies: _____

37. What is the treatment for tardive dyskinesia?

38. What is the treatment for Parkinsonian symptoms that have developed from neuroleptic administration?

End of Session Quiz – Psychiatry Part 1

1. HYQ: What is the drug category of choice for the treatment of the negative symptoms of schizophrenia?
2. HYQ: What is the drug of choice in the treatment of bipolar disorder in a patient with renal failure?
3. HYQ: What is the treatment of choice for OCD?
4. HYQ: A patient on haloperidol develops fever, muscle rigidity, confusion, and diaphoresis. What is the drug of choice in the treatment of this patient's condition?
5. HYQ: What is the most problematic congenital malformation associated with maternal lithium use?
6. HYQ: What is the most common side effect of olanzapine?
7. What are the symptoms of TCA overdose?
8. Which antidepressant matches the following statement? (FA p393)
 - SE: priapism
 - Lowers the seizure threshold and can be used for smoking cessation
 - Appetite stimulant that is likely to result in weight gain
 - Works well with SSRIs and increases REM sleep
 - Can be used for bedwetting in children
9. What are the different treatments for acute dystonia, tardive dyskinesia, and neuroleptic malignant syndrome? (SU2 p285, SU2 p286)
10. HYQ: What is the treatment of choice of mania with psychosis?
11. What are the symptoms of serotonin syndrome?
12. Which neuroleptics are known for their extrapyramidal side effects? (SU2 p285)
13. What are the treatment options for generalized anxiety disorder? (SU2 p284)
14. How does adjustment disorder with depressed mood differ from major depressive disorder? (SU2 p282)

Psychiatry Part 2

Personality Disorders (SU2 p286 – SU2 p288)

Personality Disorders (SU2 p286)

1. What personality disorder fits the following statement?
 - Excessive need to be taken care of, submissive and clinging behavior, low self-confidence, fears of separation and losing support
 - Grandiosity, feels he is entitled to things, lack of empathy
 - Suicide attempts (→ 15% mortality), unstable mood and behavior, sense of emptiness and loneliness, impulsiveness
 - Distrustful, suspicious, litigious
 - Lifelong voluntary social withdrawal, no psychosis, emotional expression is limited (restricted range of affect)
 - Feelings of inadequacy, hypersensitive to rejection or criticism, socially inhibited, shy
 - Constant mood of unhappiness and pessimism
 - Odd appearance, thoughts, and behavior; no psychosis; social awkwardness
 - Controlling, perfectionistic, orderly, stubborn, indecisive
 - Criminality, unable to conform to social norms, disregard for others' rights
 - Excessively dramatic, emotional, and extroverted; sexually provocative behavior; unable to maintain intimate relationships
2. What defense mechanism is commonly used by patients with the following personality disorders?
 - Paranoid
 - Borderline
 - Histrionic
 - Obsessive-compulsive
3. What is the difference between obsessive-compulsive disorder (OCD) and obsessive-compulsive personality disorder?
4. What are the distinguishing characteristics between antisocial personality disorder and conduct disorder?

Substance Abuse (SU2 p288 – SU2 p289)

5. What is the difference between alcohol abuse and alcohol dependence?
 - Alcohol abuse – repeated alcohol use despite recurrent adverse consequences
 - Alcohol dependence – at least 3 of the following: tolerance; withdrawal; alcohol abuse; inability to quit, cut-back, or regulate use; great amount of time spent obtaining, using, or recovering
6. What treatments are effective in help prevent relapse in recovering alcoholics?
 - _____ is the tried and true best relapse prevention
 - _____
 - _____
 - _____
 - Acamprosate (Campral) tid

7. What is the treatment for an extremely agitated and possibly violent patient under the influence of PCP?
 - Quiet, dark room with minimal auditory or tactile stimuli
 - Restraints as needed for prevent self-inflicted injury + padded bed rails
 - - To control seizures, agitation, and psychosis
 - Benzos to prevent shivering which can exacerbate hyperthermia
 - To prevent rhabdomyolysis from "fighting the restraints"
 - To further reduce risk of self-injury
 - Monitoring for seizures and aspiration
 - Gastric lavage then activated charcoal (both after chemical sedation is achieved)
 - If hypertension in a non-agitated patient → nitroprusside, phentolamine, or labetalol
 - If hypertension and neurologic abnormalities → CT head and LP to rule out subarachnoid hemorrhage
 - If temp > 40.5° C and features of malignant hyperthermia → intubation, vecuronium paralysis, dantrolene
 - If rhabdomyolysis → IV fluids +/- furosemide +/- dialysis
 - If dystonia → diphenhydramine
8. What drug is causing the following symptoms in the following patients?
 - Post-op constipation and/or respiratory depression
 - Severe depression, headache, fatigue, insomnia/hypersomnia, hunger
 - Pinpoint pupils, N/V, seizures
 - Belligerence, impulsiveness, nystagmus, homicidal ideations, psychosis
 - Headache, anxiety/depression, weight gain
 - Anxiety/depression, delusions, hallucinations, flashbacks
 - Euphoria, social withdrawal, impaired judgment, hallucinations
 - Rebound anxiety, tremors, seizures, life-threatening
 - Anxiety, piloerection, yawning, fever, rhinorrhea, nausea, diarrhea

Pediatric Psychiatric Disorders (SU2 p293 – SU2 p295)

Attention-deficit hyperactivity disorder (ADHD) (SU2 p293)

9. What comorbidities are common with ADHD in children?

Up to 50% of children with ADHD have at least one comorbidity.
10. What criteria must be met before a child can be started on pharmacotherapy for ADHD?
 - Completed diagnostic assessment
 - Age six years or older
 - Parents accept the medication as appropriate
 - School will cooperate with administration and monitoring
 - No previous sensitivity to the chosen medication
 - Normal heart rate and blood pressure (EKG prior to treatment is not necessary)
 - Seizure free
 - Absence of Tourette's syndrome or pervasive developmental delay
 - Household does not contain substance abusers
11. What other medications can be used in the treatment of ADHD in children who fail to respond to stimulants or atomoxetine?

12. What are the common complications of ADHD stimulant medications, and how are these complications managed?

Stimulants

- Insomnia → address sleep hygiene, take meds earlier in the day, change to shorter duration formulation, clonidine at night
- Appetite suppression and weight loss → administer meds after meals rather than before
- Tics → usually transient, choose low-moderate dose methylphenidate which does not worsen tics
- Psychosis or mania → discontinue (no need to taper)
- Decreased growth velocity → reassure parents that adult height is not affected, drug-holidays may help with "catch-up" growth

Atomoxetine

- Increased risk of suicidality → close observation and usually discontinuation
- Liver injury → discontinue

Tourette's syndrome (SU2 p294)

13. What therapeutic options are available for Tourette's disorder?

- Counseling/psychotherapy for social adjustment and coping
- If interfering with necessary functions of life → anti-dopamine agents: fluphenazine, pimozide, or tetrabenazine (which are all tolerated better than haloperidol in these patients)
- If only focal motor or vocal tics → Botox injections into affected muscles
- If impulse control problems → clonidine or SSRIs
- If refractory to medical management → consider deep brain stimulation of globus pallidus, thalamus, or other subcortical target (undergoing clinical trials)

Autism (SU2 p294)

14. What are some of the characteristic features of autism?

- "Living in his own world"
- Symptoms evident prior to age 3
- Lack of responsiveness to others, poor eye contact, absence of social smile
- Impairments in communication, language delay, repetitive phrases
- Peculiar repetitive, ritualistic habits (e.g., spinning around, hand flapping)
- Fascination with specific, seemingly mundane objects (vacuum cleaners, sprinklers)
- Usually below-normal intelligence

15. What are the characteristic features of Asperger's syndrome?

16. What are the characteristic features of childhood disintegrative disorder (CDD)?

- Regression of development in multiple areas after a period of at least 2 years of normal development.
- Regression may be seen in the areas of expressive or receptive language, social skills or adaptive behavior, bowel or bladder control, play, or motor skills.
- CDD is an "autism spectrum disorder" which looks just like autism except for the period of normal development
- CDD is often associated with an organic condition such as seizures or metabolic disorder.

End of Session Quiz – Psych Part 2

1. HYQ: What features are unique to PCP intoxication that allow you to distinguish it from LSD intoxication?
2. HYQ: A 19 year-old slender female presenting with recent weight loss is found to have erythema of her turbinates and nasal septum. What is the cause of her weight loss?
3. HYQ: What is the downside of adding bupropion to nicotine replacement in a patient trying to quit smoking?
4. Which childhood psychiatric disorder matches the following statements?

Females only. Loss of previously acquired purposeful hand skills between 6-30 months	
Impairments in social interactions, communications, play. Repetitive behaviors	
Impairment in social interaction, no language delay	
Stereotyped hand movements	
Characterized by hostility, annoyance, vindictiveness, disobedience, and resentfulness	
Multiple motor and vocal tics	
Impulsive and inattentive	
7-year-old that avoids going to school to stay home with parent	

5. What somatoform disorder matches the following descriptions?

Unexplained pain	
Patient with normal anatomy is convinced a part of their anatomy is abnormal.	
Unexplained loss of sensory or motor function. Normal exam/tests	
Unwavering belief by the patient that she has a specific disease (despite medical reassurance)	
Unexplained complaints in multiple organ systems	
False belief of being pregnant	

6. What are the characteristics of refeeding syndrome?
7. What are the components of the CAGE questionnaire? (SU p 288)
8. A patient is brought to the ER by police and is restrained and exhibiting violent behavior. What OD is likely? What is the Rx?

Endocrine Part 1

Disorders of Glucose Metabolism (SU2 p107 – SU2 p112)

1. What anti-islet antibodies can be seen in patients with type 1 diabetes mellitus?
anti-insulin (IAA), anti-islet cell cytoplasm (ICA), anti-glutamic acid decarboxylase (GAD), and anti-tyrosine phosphatase (IA-2)
2. How do you distinguish the Somogyi effect from the Dawn phenomenon?

Diabetes mellitus type 2 (SU2 p107)

3. Which of the oral agents used in the control of type 2 diabetes has the following characteristics:

Lactic acidosis is a rare but worrisome side effect	
Most common side effect is hypoglycemia	
Oldest and cheapest of the oral agents	
Often used in combination with any of the other oral agents	
Also help lower triglycerides and LDL cholesterol levels	
Not safe in settings of CHF	
Should not be used in patients with elevated serum creatinine	
Should not be used in patients with inflammatory bowel disease	
Hepatic serum transaminase levels should be carefully monitored when using these agents	
Not associated with weight gain, often used in overweight diabetics	
Metabolized by liver, excellent choice in patients with renal disease	
Primarily effects postprandial hyperglycemia, taken with meals	

4. What are the differences between the following newer diabetic agents?

Sitagliptin (Januvia) and Saxagliptin (Onglyza)

- Inhibitors of dipeptidyl peptidase IV (DPP-IV) which affects Glucagon-like peptide (GLP-1) among other hormones
- Prolongs incretin actions, which decreases glucagon secretion and increases insulin secretion, delays gastric emptying

Exenatide (Byetta) and Liraglutide (Victoza)

- Exenatide is an analog of Exendin, a hormone (derived from Gila monster saliva) with actions similar to GLP-1
- Liraglutide is a synthetic analog of human GLP-1
- Mimic the actions of incretins, which decrease glucagon secretion and increase insulin secretion, delay gastric emptying.
- Not approved for use while on insulin therapy
- SE: possibly increased risk of acute pancreatitis.

Pramlintide (Symlin)

- Amylin analog, normally secreted with insulin, decreases glucagon secretion and gastric emptying
- Used only in patients taking insulin but in either type I or type II DM patients

5. What are the criteria for the diagnosis of metabolic syndrome?

(ATPIII Clinical Criteria, Circulation 2005;11:1883)

Diagnosis based on any 3 of the following:

- _____ : Waist circumference > 40in (102cm) in men, or > 35in (88cm) in women
(IDF criteria is ≥ 94 cm in men, and ≥ 80 cm in women)
(Recognize that not all metabolic syndrome patients are overweight!)
- _____ ≥ 150 mg/dl
- _____ <40mg/dl in men, or <50mg/dl in women
- _____ $\geq 130/85$
- _____ ≥ 100 mg/dl (or 2hr post oral glucose ≥ 140 mg/dl)

Complications of diabetes (SU2 p109)

6. Common causes of DKA:

Usually excess glucagon, catecholamines, or corticosteroids)

- Infection (pneumonia, gastroenteritis, UTI)
- Medication reduction or omission
- Severe medical illness (MI, CVA, trauma)
- Undiagnosed DM
- Dehydration
- Alcohol or drug abuse
- Corticosteroids

7. What are the necessary steps in the treatment of diabetic ketoacidosis?

8. How do we diagnose diabetic gastroparesis?

9. What are the treatment options for diabetic gastroparesis?

10. Diabetes Mellitus – General Care

- Exercise: Walking at least 2 hours a week reduces mortality by about 40%
- Healthy diet
- Daily FSBG documented and brought to clinic visit
- PE q3-6m with attention to BP (Goal < 130/80), weight-loss, feet, waist circumference
- HbA1C q3m if >7.0, q6m if < 7.0
 - American Diabetic Association goal < 7.0
 - American Association of Clinical Endocrinologists goal < 6.5
- Urine microalbumin q3m-1yr
 - 24 hour urine for protein, Cr, and CrCl if UA protein >100 or high serum Cr
 - Consider annual 24 hour urine for protein, Cr, and CrCl
- Lipid Panel q1 yr.
 - Goal total cholesterol < 150
 - Goal LDL <100 (<70 if evidence of vessel disease): Use statins or WelChol which has been shown to reduce HgA1C by 0.47% in users of metformin monotherapy
 - Goal HDL >40 (men), >50 (women) – (niacin may worsen insulin resistance)
- Chem 8 and UA q1 year
- Dilated eye exam (r/o retinopathy, glaucoma, cataracts) q1 year
- Influenza vaccine q1 year
- Pneumonia vaccine
- Consider daily ASA 81mg, ACE-I, statin (Lipitor 10mg)

Thyroid Disorders (SU2 p112 – SU2 p115)

Thyroid storm (SU2 p112)

11. What is the treatment for thyroid storm?

- ICU admission due to high mortality
- Rule out infectious cause with blood and urine cultures. Empiric antibiotics if infection suspected.
- Hydrate fluid deficit aggressively (unless overt heart failure). Use glucose solutions and replace multivitamins
- Digoxin if heart failure and/or atrial fibrillation (higher than normal doses may be required)
- Tylenol for fever. Avoid aspirin which interferes with thyroid protein binding generating more free thyroid
- _____ to control adrenergic stimulation
 - Propranolol IV until adequate tachycardia resolved (must be monitored with continuous EKG and BP monitor) then PO q4-6hrs
 - Esmolol IV infusion titrated to resolve tachycardia
- Thionamide to block new hormone synthesis:
 - _____ – blocks peripheral conversion of T4 to T3, usual drug of choice here
 - _____ – longer acting than PTU, does not block peripheral conversion of T4 to T3 therefore ideally administered with iopanoic acid (not available in US) which does inhibit this conversion
- _____ to block the release of T4 and T3 from the gland, dose at least one hour after thionamide to prevent the iodine from being used to create more thyroid hormone
 - Iodide (sodium iodide) IV q6hrs
 - Lugol's solution PO (or to IVF) q8hrs
 - SSKI (saturated solution of potassium iodide) 5 drops PO q6-8hrs
- +/- Glucocorticoids to reduce conversion of T4 to T3 and treat the autoimmune process in a hyperthyroid pt with Graves' disease

Thyroid carcinoma (SU2 p114)

12. Thyroid Nodules

Considerations

- Incidence of palpable thyroid nodules ($\geq 2\text{cm}$) is about 4-5% of adults
- About 1 out of 10 nodules is cancer. Death rate from thyroid cancer is about 1 out of 1 million
- Higher chance that a nodule is cancer if: child, elderly, h/o of external radiation, male, FH of thyroid cancer
- More likely malignant if sono/Doppler shows: irregular margins, intranodal vascular pattern, or microcalcifications

Work-up

- Check TSH, free T4, thyroid sono to measure size and assess for other nodules
- If hyperthyroid \rightarrow radionucleotide uptake scan
(No role for radionucleotide uptake scan if euthyroid or hypothyroid!)
 - Hot nodule \rightarrow treat as hyperthyroid
 - Cold nodule \rightarrow FNA
- If hypothyroid \rightarrow replace thyroid hormone and monitor for decrease in nodule size
 - If nodule persists after thyroid replacement \rightarrow FNA
- If euthyroid \rightarrow FNA

FNA Follow-up

- Malignant \rightarrow needs surgery
- Benign \rightarrow repeat thyroid sono q6 months-1 year to make sure no increase in size
 - If size increases \rightarrow repeat FNA
- Nondiagnostic \rightarrow repeat FNA
- Intermediate \rightarrow repeat thyroid sono in 6 months
- Even if FNA is negative, you cannot 100% rule out thyroid cancer. Explain to patient that there is still about a 1% chance that this could be cancer and offer to let them choose between q6m US surveillance or removal of the nodule (partial vs. total thyroidectomy).

End of Session Quiz – Endocrine Part 1

1. HYQ: Patient has exophthalmos → What is the most likely cause?
2. HYQ: How is diabetic gastroparesis diagnosed and treated?
3. HYQ: In which of the following hyperthyroid diseases is radioactive iodine most likely to result in hypothyroidism: Graves disease, toxic multinodular goiter, toxic adenoma?
4. HYQ: What is the treatment of the most common cause of hyperthyroidism?
5. HYQ: What can cause hypoglycemia in a non-diabetic patient?
6. HYQ: What are the signs and symptoms of diabetic ketoacidosis?
7. HYQ: What lab abnormalities necessitate obtaining thyroid function testing to rule-out thyroid disease?
8. HYQ: A patient with hypothyroidism and elevated anti-TPO antibodies is at increased risk of which type of cancer?
9. What would you suspect to be the cause of hyperthyroidism in a patient presenting with the symptoms of hyperthyroidism in addition to the following findings?
 - Extremely tender thyroid gland
 - Pretibial myxedema
 - Pride in recent weight loss, medical professional
 - Palpation of single thyroid nodule
 - Palpation of multiple thyroid nodules
 - Recent study using IV contrast dye (iodine)
 - Eye changes: proptosis, edema, injection
 - History of thyroidectomy or radioablation of thyroid
10. What is the next step in the management of a newly-found thyroid nodule in a patient with hyperthyroidism?
11. What is the work-up for the underlying cause of DKA?
12. What thyroid abnormalities would you expect to find during pregnancy?
13. What is the treatment for proliferative diabetic retinopathy? What is the treatment for peripheral neuropathy?

Endocrine Part 2

Parathyroid Disorders (SU2 p115 – SU2 p116)

Primary hyperparathyroidism (SU2 p116)

- What are the 2 most common causes of primary hyperparathyroidism? What is the treatment for each?
The 2 most common causes are parathyroid adenoma and parathyroid hyperplasia. Treat as follows:
 - Surgical parathyroidectomy if one of the following: (high-yield)
 - _____ > 1.0 mg/dL above the upper limit of normal
 - _____ reduced by 30%
 - _____ T-score < -2.5 at any site
 - Age < _____
 - If adenoma and surgery indicated → removal of only the gland containing the adenoma and biopsy of 1-3 other glands
 - If hyperplasia and surgery indicated → removal of 3 and a half glands and marking the remaining half with a surgical clip (or forearm autotransplantation of the gland to remain in cases where recurrence is likely such as MEN type 1)
 - If surgery is not recommended or is refused:
 - Prevent worsening hypercalcemia by avoiding thiazides, lithium, volume depletion, prolonged bed rest, or calcium ingestion > 1000mg/day
 - Adequate hydration (6-8 glasses of water daily) to avoid renal stones
 - Minimize bone resorption via _____, exercise, 1000mg calcium daily (except if calcitriol is elevated), and adequate vitamin D intake (400-600 IU/day)
 - Routine monitoring of serum calcium (q6m), serum creatinine (q12m), and bone density at the hip, L-spine, and forearm (q12m)
- What is the treatment for hyperparathyroidism due to chronic renal disease?
Hyperphosphatemia
 - Dietary restriction of phosphate (protein)
 - Oral phosphate binders taken with meals
 - _____ – most commonly used (not calcium citrate which increases aluminum absorption)
 - Sevelamer – nonabsorbable (does not cause hypercalcemia), can be taken with calcium
 - Lanthanum – long-term side effects currently unknown
 - Aluminum hydroxide – now avoided because of gradual induction of aluminum toxicity
Renal Osteodystrophy
 - Lessen hyperphosphatemia via the above measures in order to lessen bone resorption
 - Calcitriol, other vitamin D analog, or cinacalcet (a calcimimetic) to suppress PTH secretion

Pituitary and Hypothalamic Disorders (SU2 p116 – SU2 p119)

Hyperprolactinemia (SU2 p116)

- What are the symptoms of hyperprolactinemia? (high-yield!)
 - Premenopausal female – hypogonadism → infertility, oligo/amenorrhea; rarely galactorrhea
 - Postmenopausal female – none since already hypogonadal; rarely galactorrhea
 - Male symptoms – hypogonadism (low testosterone) → decreased libido, impotence, infertility (low sperm counts), gynecomastia, rarely galactorrhea
- What is the treatment for a prolactinoma?
 - First-step: Dopamine (DA) agonist (_____ > bromocriptine or pergolide)
 - If DA agonist ineffective → switch to a 2nd DA agonist
 - If DA agonists are ineffective → _____
 - If female with adenoma > 3cm and desire to become pregnant (during which time the DA agonist is withheld → transphenoidal surgery even if the DA agonist is effective
 - If large adenoma is surgically removed → radiation therapy after surgical debulking

Acromegaly (SU2 p118)

5. What are the symptoms and signs of acromegaly? What tests can be used to confirm the diagnosis?

The average time frame from onset to diagnosis is 12 years, and it presents with the following symptoms:

- Enlarged jaw (teeth spread apart); nose and frontal bones (coarse facial features); hands and feet (increase in ring, glove, shoe size)
- Soft tissue growth: voice deepens, macroglossia (teeth indentations in tongue), carpal tunnel syndrome and other entrapment syndromes, hypertrophy of synovial tissue and cartilage → arthropathy
- Cardiovascular disease: HTN, LVH, diastolic dysfunction
- Glucose intolerance in 50%, DM in 10%

Diagnostic testing:

- Screen: measure serum levels of insulin-like growth factor 1 (IGF-1)
- Confirm diagnosis with oral glucose suppression test (75g glucose → measure GH at 1hr and 2hr → if GH concentration is > 1ng/mL = acromegaly)
- If testing positive for acromegaly → pituitary MRI to eval for mass or empty sella

6. What is the treatment for acromegaly?

- Transsphenoidal resection of pituitary adenoma or external beam radiation
- If unable to resect adenoma → somatostatin analog (octreotide or lanreotide) – inhibits GH secretion
- If somatostatin analog ineffective → cabergoline (dopamine agonist that inhibits GH secretion)
 - bromocriptine is less effective than is cabergoline
- If cabergoline ineffective → pegvisomant (GH receptor antagonist)

Hypopituitarism (SU2 p118)

7. What is the usual presentation of Sheehan syndrome? (high-yield!)

- Postpartum hemorrhage → hypotension → infarction of the pituitary gland → hypopituitarism
- Severe Sheehan → first few days-weeks after delivery → lethargy, anorexia, weight loss, and inability to lactate
- Mild Sheehan → wks, months, or yrs after delivery → mild fatigue, anorexia, weight loss; failure of Postpartum lactation; failure to resume menses; and loss of sexual hair
- Possible ACTH deficiency → _____
- Possible TSH deficiency → _____

End of Session Quiz – Endocrine Part 2

1. HYQ: A patient with elevated blood pressure, palpitations, headache, excessive perspiration is found to have elevated urine vanillylmandelic acid levels. What effect would giving a beta-blocker have on this patient?
2. HYQ: What is a lactotroph adenoma? What is a somatotroph adenoma?
3. HYQ: Most likely cause of increased PTH + decreased serum calcium + increased serum phosphate?
4. HYQ: Of DHEA, DHEA-S, and testosterone, which is made only by the adrenals and is a more specific marker for an androgen-producing adrenal tumor in a woman?
5. HYQ: What is the most specific lab finding in making the diagnosis of primary hyperaldosteronism?
6. What is the next step in the management of a patient with hyperprolactinemia not due to an obvious drug cause?
7. What is the next step in the management of a patient found to have an absent pituitary on MRI (empty sella)?
8. What drugs are known for causing elevated prolactin levels? (SU2 p117)
9. Compare PTH, alkaline phosphatase, serum calcium, and serum phosphate levels in patients with the following diseases: (SU2 p116)

	Ca ²⁺	Phos	Alk Phos	PTH
Paget's Disease				
Osteomalacia / Rickets				
Chronic renal failure				
Osteoporosis				
Osteopetrosis				
Primary hyperparathyroidism				
Hypoparathyroidism				
Pseudohypoparathyroidism				

10. What are the indications for surgical parathyroidectomy?

Emergency Medicine

Accidents and Injury (SU2 p147 – SU2 p150)

Burns (SU2 p147)

1. What are the differences between 1st, 2nd, 3rd, and 4th degree burns?

<u>Traditional Classification</u>	<u>Depth Classification</u>	<u>Involvement</u>	<u>Signs and Symptoms</u>
1 st degree	Superficial	Only the epidermis	Painful, erythema Capillary refill intact.
	Superficial partial-thickness	Epidermis and partial thickness of the dermis	Painful, erythema Capillary refill intact.
2 nd degree	Deep partial-thickness	Epidermis and partial thickness of the dermis	Painful, blisters.
3 rd degree	Full thickness	Epidermis, entire dermis, and possibly deeper tissues	White and/or charred. Does not blanch with pressure
4 th degree		Additional involvement of muscle and bone	

2. What complications can arise from electrical burns?
In electrical burns, internal damage may be worse than external damage, and _____, _____, bony injuries, myoglobinuria, acidosis, _____, and/or various neurologic disturbances may occur.
3. What is unique to the management of electrical burn patients as compared to heat burn patients?
- _____ to prevent myoglobinuria, renal failure, and acidosis in the face of muscle necrosis
 - High index of suspicion for compartment syndrome
 - Obtain an EKG and monitor for dysrhythmias
4. When should a burn patient be transferred to a burn center?
- Full-thickness burn > 5% of BSA
 - Partial-thickness burn > 10% BSA
 - Any burn to the face (especially eyes and ears), genitals, perineum, or major joints
 - Circumferential burns
 - Electrical or lightning injury
 - Inhalation injury
 - Fracture or other trauma associated with the burn
 - Preexisting medical problems (e.g., diabetes, sickle cell) or special psychosocial or rehabilitative needs
5. What are the common life-threatening complications in a patient with substantial burns?

Drowning (SU2 p148)

6. How is a patient managed after a near-drowning episode?

- Airway, Breathing, Circulation
 - High-flow oxygen
 - Intubate if unconscious, neurologic deterioration, or unable to maintain $\text{PaO}_2 > 60 \text{ mmHg}$
 - Monitor ABGs closely
- Evaluate for head injuries, spinal-cord injuries, and illicit drug use which may have precipitated the near-drowning
- If hypothermia → remove wet clothing and rewarm using various rewarming techniques
 - Resuscitation is continued until the pt's temp is $32\text{-}35^\circ\text{C}$ ($90\text{-}95^\circ\text{F}$). "Not dead until warm and dead." Sometimes this may take hours
- NG tube placement to remove excess ingested water
- Monitor in hospital for at least 8 hours
- Monitor for electrolyte disturbances from water ingestion
- Diuretics as needed for hypervolemia
- Bronchodilators as needed for maximum airway patency
- Phenytoin as needed for seizure control

Heat emergencies (SU2 p149)

7. What is the treatment for heat stroke?

- Address airway, breathing, circulation
- Confirm temperature (rectal if possible)
- Administer oxygen at 4L/min (or titrated to O_2 saturation)
- Cooling to goal of 39.5°C (103°F)
 - Ice packs to neck, axilla, and groin
 - Continuous fanning and spraying of the skin with lukewarm water
 - +/- cold gastric lavage, cooling blankets, cold IVF
- _____ → goal MAP of $>60\text{mmHg}$
- if seizures → benzodiazepines
- (_____ are ineffective for temp regulation in this setting since the hypothalamus set-up is not the underlying problem)

Venomous bites and stings (SU2 p149)

8. What is the treatment for a black widow spider bite?

- Mild skin reactions resolve in less than 12 hours without complications.
 - Initially wash wound with soap and water
 - Ice to reduce inflammation
 - 24 hours observation for signs of systemic involvement
 - Pressure and immobilization to slow the systemic spread of venom
 - _____
 - Analgesia as needed
- If necrotic center $> 2\text{cm}$ → 5-7 days of _____
- If ulceration → wound care with dressing changes and debridement
- If signs of infection, cellulitis, abscess → antibiotics (_____)
- Consider _____ to possibly reduce the extent of local necrosis due to leukocyte inhibitory properties (r/o G6PD deficiency prior to dapsone use due to risk of hemolytic anemia)
- If systemic symptoms (AKA latrodectism manifesting with muscle spasms, abdominal stiffness, altered mental status, autonomic stimulation):
 - _____ q2 hours for muscle pain
 - _____ for mental status changes
 - _____ 1mg/kg (although no proven benefit)
 - Nitrates for hypertension
 - Methocarbamol (Robaxin) for muscle spasms
 - Analgesia with acetaminophen +/- opioids
 - Antivenom ideally within _____ of the bite

9. What is the treatment for a dog or cat bite?

- Clean surface with iodine, then copious pressure irrigation with normal saline. Use a soft IV catheter to get deep into the wound
- Plain film of bite site to insure no foreign materials (such as bone fragments) are left in wound
- Should you suture the wound closed?
 - Puncture bites and dog bites to the _____ should not be closed with sutures
 - _____ should be sutured due to low rate of infection
 - Higher likelihood of infection favors leaving wound open. Infection more likely in _____ bites than in dog bites, in animals eating _____ rather than dry food, presentation more than 6-12 hours after bite to arm/leg, presentation more than 12-24 hours after bite to face, and/or immunocompromised host
- _____ prophylaxis if the animal cannot be observed for 10 days or if the animal is suspected to be rabid.
- _____ immunization if not received in the previous 5 years
- Antibiotic treatment for 10-14 days (especially in _____) with one of the following:
 - Unasyn 3g IV x1 then Augmentin 875mg PO bid or 500mg PO tid
 - Clindamycin 300mg PO qid + fluoroquinolone (Cipro 500mg bid or levofloxacin 750mg qd or moxifloxacin 400mg qd)
 - Clindamycin 300mg PO qid + Bactrim DS PO bid
- If infected (usually 24 hours after presentation), obtain wound cultures (both aerobic and anaerobic) and have patient follow-up in 24 hours and daily to determine that infection is resolving and current antibiotics and that surgical intervention is not needed.
- If infected hand wound, strongly consider hand surgeon consult to specific recommendations. Start IV antibiotics.
- If severe infection (spreading cellulitis, sepsis, systemic symptoms), hospitalize for IV antibiotics
- If victim is not the owner of the animal, photographs should be taken
- If child, then follow-up psychological assessment for _____ is indicated as it occurs in more than 50% of these children

10. What are the indications for a tetanus booster in an adult patient?

- Td should be given to every adult every _____
 - A Tdap booster is recommended once in place of the Td between ages 19-64 years
- Td should also be given to patients with wounds as recommended below:

	Uncertain or <3 prior tetanus immunizations	≥3 prior tetanus immunizations
Non tetanus-prone wound, LE, clean & minor	Td (DT if <7 years old) → complete series (3 total)	Td if >10 years since last dose
Tetanus-prone wound (dirt, contamination, punctures, crush components)	Td (DT if <7 years old) + tetanus immune globulin 250 units IM at site other than Td → complete series	Td if >5 years since last dose

Toxicology (SU2 p150 – SU2 p151)

What are the antidotes to the following toxins?

- a. Acetaminophen
- b. Salicylates
- c. Anticholinesterases, organophosphates
- d. Antimuscarinic, anticholinergic agents
- e. β -blockers (or verapamil)
- f. Digoxin
- g. Iron
- h. Lead
- i. Mercury
- j. Copper
- k. Cyanide
- l. Methemoglobin
- m. Carbon monoxide (SU2 p151)
- n. Methanol, ethylene glycol (antifreeze)
- o. Opioids
- p. Benzodiazepines
- q. Tricyclic Antidepressants
- r. Heparin
- s. Warfarin
- t. t-PA, streptokinase
- u. Isoniazid
- v. Sulfonylureas

Ingested poisons (SU2 p150)

11. What are the symptoms of anticholinergic toxicity? What is the antidote?

- Hot as a hare (hyperpyrexia), Dry as a bone (decreased secretions), Red as a beet (cutaneous flushing), Blind as a bat (cycloplegia and mydriasis), Mad as a hatter (disorientation), Bloated as a toad (constipation and urinary retention), tachycardia, and decreased or absent bowel sounds
- Antidote –

12. What are the signs and symptoms of organophosphate poisoning?

DUMBBELSS: Diarrhea, Urination, Miosis, Bronchospasm, Bradycardia, Emesis and Excitation of skeletal muscle, Lacrimation, Sweating, Salivation, and abdominal cramping. (Think of extreme “rest and digest,” parasympathetic/cholinergic activity, and loss of fluids from multiple areas of the body.)

13. What is the treatment for a patient that has ingested respectable amounts of methanol or ethylene glycol (antifreeze)?
- Airway, Breathing, Circulation
 - NG tube gastric aspiration if ingestion of a large amount within the last 60 minutes (rare)
 - _____ – to correct acidosis and limit penetration of toxic metabolites into tissues (such as retina)
 - Inhibit the alcohol dehydrogenase enzyme with fomepizole or ethanol:
 - _____ – preferred drug, IV load then q12 hours
 - _____ – if fomepizole is unavailable, dose to serum level of 100 mg/dL
 - Dialysis if _____ (e.g., vision changes or renal failure)
 - Folic acid (50mg IV q6 hours), Thiamine (100mg IV), and Pyridoxine (50mg IV) supplementation to optimize elimination pathways
14. What sequelae would you expect to see in a toddler that ingested too much iron when he found his mother's prenatal vitamins?
- Gastrointestinal phase (30 min – 6 hours after ingestion)
 - Abdominal pain, vomiting, diarrhea (often bloody), hematemesis, melena, lethargy, shock
 - In cases of mild iron toxicity, this is usually the only phase present
 - If no GI symptoms develop within _____ after ingestion, it is unlikely that iron toxicity will occur (unless the patient consumed enteric coated iron)
 - Latent/stable phase (6 – 24 hours after ingestion)
 - Observation is required when patients have gone through the GI phase in order to determine if the toxicity was mild then resolved or if the patient simply entered into this Latent phase
 - Shock and metabolic acidosis (6 – 72 hours after ingestion)
 - Widespread cellular dysfunction
 - Multisystem organ failure, GI bleeding and/or perforation, pulmonary dysfunction, coagulopathy, renal dysfunction, and neurologic dysfunction can all occur in this phase
 - Outcomes are poor in this stage and therapies have little effect
 - Hepatotoxicity/hepatic necrosis (12 – 96 hours after ingestion)
 - _____ (2 – 8 weeks after ingestion)
 - Occurs from GI scarring classically at the gastric outlet
 - Vomiting is the presenting symptom
15. A schizophrenic patient comes to the ER for ingestion of alkali plumbing liquid. How is this patient managed?
- Airway, Breathing, Circulation
 - If respiratory distress → laryngoscopy → +/- tracheostomy
 - Emergency surgery if signs of perforation, mediastinitis, or peritonitis. (Esophagectomy with colonic interposition)
 - DO NOT give an emetic such as _____, a _____ (which will improve nothing but may result in thermal injury), or _____ (which may lead to perforation or emesis of caustic material)
 - If asymptomatic and reliable history of low volume, accidental ingestion → outpatient follow-up only may be appropriate. Otherwise, manage as follows:
 - Endoscopy (EGD) asap
 - Mild or no injury → _____
 - Grade 1 – 2A injury → liquid diet → advance to regular in 24-48 hours
 - Grade 2B – 3 injury → NPO for 24 hours → NGT feeds → oral liquids after 48 hours (if able to swallow saliva)
 - Grade 3 → _____
 - ICU care to manage life-threatening complications (mediastinitis, peritonitis, respiratory distress, shock)
 - General ICU care: IVF, NPO, PPI for stress ulcer prevention, narcotic pain relief
 - Esophageal dilations 3-6 weeks after injury if necessary for strictures
 - Surveillance EGD beginning 15-20 years after the ingestion at an interval of q1-3 years to screen for esophageal squamous carcinoma

16. What are the signs and symptoms of cyanide ingestion?

- Tachycardia, hypertension, flushing, tachypnea → obtundation → coma → death
- _____ (discernible to 60% of the population)
- Late findings: bradycardia, hypotension, bradypnea, cyanosis, hepatic necrosis, renal failure
- Delayed-onset _____ in survivors of severe poisoning (basal ganglia is sensitive to cyanide)

17. What is the treatment for cyanide poisoning?

- Airway, Breathing, Circulation
 - High-flow oxygen regardless of pulse-ox readings
 - Mouth-to-mouth resuscitation is contraindicated here due to risk of provider exposure
- If oral ingestion → 1 dose activated charcoal (50g in adults)
- Sodium thiosulfate
 - Sulfur donor that facilitates the conversion of cyanide to thiocyanate which is renally excreted
- Hydroxocobalamin (a vitamin B12 precursor)
 - Directly binds cyanide to form cyanocobalamin which is less toxic and excreted in the urine
 - Causes a reddish discoloration of the skin, mucus membranes, and urine
 - Works well in conjunction with sodium thiosulfate
 - Generally preferred over nitrate induced methemoglobinemia which can be lethal
- Amyl nitrate and sodium nitrate
 - Induce methemoglobinemia which binds cyanide to form cyanomethemoglobin
 - Goal methemoglobin level is 20-30% (but this is lethal in children and anemic patients).
 - Contraindicated in patients with carboxyhemoglobinemia (usually from smoke inhalation)
 - Methemoglobinemia can reversed with methylene blue, but this should be avoided in cyanide poisoned patients because it will release free cyanide
 - Works well in conjunction with sodium thiosulfate

18. What are the classic features of digoxin toxicity?

- Nonspecific symptoms: fatigue, blurred vision, change in color vision (e.g., "yellow vision"), anorexia, nausea, vomiting, diarrhea, abdominal pain, headache, dizziness, confusion, delirium, ...
- Characteristic EKG changes:
 - Prolonged PR interval, "scooping" of ST segments – seen at therapeutic levels
 - _____ – most frequent vital sign abnormality in toxicity
 - Atrial tachycardia with AV block (e.g., 4:1 or 6:1) – less common
 - Accelerated junctional rhythm or bidirectional ventricular tachycardia – suggests digoxin toxicity until proven otherwise
- _____ indicates the severity of digoxin toxicity (which inhibits the Na-K-ATPase)
- Elevated serum digoxin levels

19. What is the treatment for digoxin toxicity?

- Activated charcoal in repeated doses (e.g., 50g q4-6 hours x 24 hours)
- _____ if one of the following is present:
 - Hemodynamic instability
 - Life-threatening arrhythmias or severe bradycardia (even if responsive to atropine)
 - Plasma potassium level > 5 mEq/L in an acute overdose
 - Plasma digoxin level > 10 ng/mL
 - Ingestion of > 10 mg of digoxin in adults or > 4 mg in children
 - Presence of a digoxin-toxic rhythm in the setting of an elevated digoxin level
- Treat hyperkalemia only if it is causing EKG disturbances and avoid _____ which can worsen intracellular hyperkalemia in these particular patients.
- If bradycardia → _____
- ACLS medications as needed (except calcium)

20. What are the potential consequences of acetaminophen overdose?

Stage I	30 minutes – 24 hours	Nausea, vomiting, diaphoresis, pallor, lethargy, and malaise
Stage II	24 – 72 hours	Elevated LFTs, PT, and total bilirubin RUQ pain and tenderness
Stage III	72 – 96 hours	Peak LFT elevation Jaundice, hepatic encephalopathy, bleeding, +/- acute renal failure Possible multisystem organ failure → death
Stage IV	4 days – 2weeks	Recovery

21. What are the diagnostic features indicative of aspirin overdose?

- _____ – an important part of the patient history
- Hyperthermia (as ASA uncouples mitochondrial oxidative phosphorylation)
- _____ (from hyperventilation) → then mixed respiratory alkalosis and metabolic acidosis with elevated anion gap
 - Tachypnea results from ASA stimulation of the medullary respiratory center
 - Acidosis results from accumulation of lactic acids and ketoacids
- Nausea and vomiting, dehydration
- Altered mental status

22. What is the treatment of a patient that has an elevated INR from excessive warfarin ingestion?

- INR < 5 without bleeding. Options:
 - Skip next dose + lower routine dose
 - Lower routine dose only
 - Do nothing if minimal and identifiable inciting event
 - INR 5-9 without bleeding. Options:
 - Skip next 1-2 doses → monitor INR q1-2 days and resume dosing when INR at desired level + lower routine dose
 - Skip next dose + administer vitamin K (1-2.5mg orally) + lower routine dose
 - INR > 9
 - Hold dosing until INR in therapeutic range + administer vitamin K 5-10mg PO once and as needed subsequently + lower routine dose
 - INR > 20 → choose to treat as if “serious bleeding” or as INR > 9
 - Any serious bleeding
 - Vitamin K 10mg slow IV + administer fresh frozen plasma (FFP*) + monitor INR and repeat FFP* dosing as needed + stop warfarin (individual clinical judgment must be used in decision to restart)
- * Prothrombin complex concentrate or recombinant human factor VIIa can be used in place of FFP

23. What problems can arise from theophylline overdose?

- Therapeutic range is 10-20mg/L. Every patient is unique and some may have mild SE at 15mg/L. Even a level above 25mg/L is worrisome.
- Main SE: seizures (and hyperthermia), hypotension, and _____
- Seizure SE may occur at levels of 14-35mg/L. Seizure risk is more likely in older patients, prior brain injury patients, patients with severe pulmonary disease, and patient with hypoalbuminemia.

Cardiovascular Emergencies (SU2 p151 – SU2 p152)

Cardiac arrest (SU2 p151)

24. Describe the treatment steps for ventricular fibrillation or pulseless ventricular tachycardia (ACLS)? (SU2 p154)

Emergency defibrillation 360J → 2 min of CPR → repeat 360J defib → 2 min of CPR → epinephrine 1mg IV*
→ repeat 360J defib → repeat epinephrine 1mg IV q3-5min + consider antiarrhythmics amiodarone or lidocaine

(*vasopressin 40 units IV can be given in place of the first dose of epi)

25. What drugs are used in treating a stable, asymptomatic ventricular tachycardia?

26. What is the treatment for supraventricular tachycardia (SVT)?

Attempt vagal maneuvers and carotid massage → adenosine → ventricular rate-control (digoxin, calcium channel blocker, or β -blocker) → electric cardioversion

27. What is the initial treatment for new atrial fibrillation with rapid ventricular rate of unknown duration?

- Rate control with one or more of the following: β -blockers, digoxin, verapamil, or diltiazem
- Anticoagulation with heparin (then later warfarin)

28. What is the treatment for pulseless electrical activity (PEA)? (SU2 p154)

- CPR
- Airway, Breathing, Circulation
- Epinephrine 1mg IV q3-5 minutes
- Evaluate and treat H causes
 - _____ → rapid volume resuscitation through multiple IV sites and/or central line
 - _____ → correct via intubation, chest tube, or oxygen
 - _____ → IV push 1-2 amps bicarb (commonly needed in a prolonged "code")
 - _____ → administer KCl
 - _____ (common in a prolonged "code" due to acidosis) → CaCl IV push, bicarb, insulin/glucose
 - _____ (always a check finger-stick!) → 1 amp D50 IV push
 - _____ → warming
- Evaluate and treat T causes
 - _____
 - _____ → pericardiocentesis
 - _____ → needle decompression then chest tube
 - _____ → cardiac cath or thrombolytic
 - _____ → thrombolytic or thrombectomy
 - _____ → follow ATLS protocols

29. What is the treatment for bradycardia due to β -blocker overdose?

- IV fluid bolus
- _____ – 0.5-1mg IV every 3-5 minutes as needed up to 0.03-0.04mg/kg (2.5-3mg for a 70kg patient)
- GI decontamination
 - Activated charcoal (1 dose)
 - If within 1 hour of ingestion, then gastric lavage
 - If significant hypotension or bradycardia, then gastric lavage
 - If extended-release pill, then consider whole bowel irrigation (Go-Lytely)
- If BP and HR unresponsive to above, then use the following interventions in succession as needed:
 - _____ IV bolus over 1 min → if no effect after 10-15 min → repeat bolus
 - _____ 1 amp SIVP (10mL) (or calcium gluconate 3 amps (30mL))
 - _____ - check glucose level every 30-60 minutes for the first 4 hours → titrate glucose to euglycemia
- Vasopressors (usually _____)
- Consider temporary transvenous pacing, intraaortic ballon, and/or cardiopulmonary bypass

End of Session Quiz – Emergency Medicine

1. What EKG abnormality is classic for patients with hypothermia?
2. HYQ: What is the treatment for lead poisoning in adults? What is the treatment in children?
3. HYQ: What is the Parkland burn formula? (FA2 p459, B&W p158, SR p250)
4. HYQ: What is the treatment for a black widow spider bite?
5. HYQ: What is the treatment for a skin laceration on the dorsum of the hand that resulted from a closed fist hitting a victim's mouth?
6. HYQ: What is the next step in the management of a patient that presents to the ER with organophosphate poisoning?
7. What classic toxic ingestion management options should not be chosen in patients presenting with alkaline fluid ingestion?
8. What medications are used in cases of cyanide poisoning?
9. A COPD patient comes to the ER with tachycardia and hypotension. During the evaluation he begins to have seizures. What is the most likely etiology?
10. What is the ACLS protocol for ventricular fibrillation?
11. What is the ACLS protocol for asystole?
12. At what point in a patient with an elevated INR due to warfarin would you consider dosing vitamin K to reverse the warfarin?

Trauma

Traumatology (SU2 p152 – SU2 p159)

Trauma assessment (SU2 p153)

Airway

- Obtain airway (ET tube or Cricothyroid) if patient not moving air (If patient is speaking then patient is moving air)

Breathing

- Start O₂
- Pulse-ox
- Bag ventilation if airway good, but still not breathing.
- Consider needle decompression and/or chest tube placement if auscultation is consistent with pneumothorax.

Circulation

- Check pulse (carotid, femoral, or other)
- Check vitals and rhythm on heart monitor → ACLS per protocol
- Listen for heart sounds
- Make sure 2 large bore IVs or a central line has been started
- Start IVF
- Control active bleeding

Disability

- Glasgow coma scale
- Finger-stick blood glucose

Exposure

- Remove all clothes
- DRE & Foley.
- Cover with blanket to avoid hypothermia

Secondary Survey

- Reassess above ABCs
- DRE & Foley (no Foley if: mobile or high-riding prostate, or blood from urethral meatus)
- NGT placement (as needed)
- History (Allergies, Meds, Drugs, PMH/PSH, Last meal, Events of trauma)
- Head to toe exam
- Examine back for wounds or spinal injuries
- Remove from backboard
- X-rays – usually C-spine + CXR + AP pelvis
- CT scans (as needed)
- Labs (CBC, Chem 14, EtOH, UDS, UA)
- Other Management
- Serious fracture management
 - Pelvic fracture: wrap bedsheet tightly around pelvis to stabilize
 - Femur fractures: closed reduction via manual traction, then stabilize with traction brace
 - Open fractures: remove any gross debris → NS pressure wash x5L → cover with Kerlex
- Meds: antibiotics, analgesics, tetanus shot
- Consults
- Documentation and talk with family

Head trauma (SU2 p153)

1. What are the classic physical findings in a basilar skull fracture?

2. What is Cushing's triad?

3. What interventions can be used to lower intracranial pressure in a head injury patient?

- If patient needs intubation, pretreat with lidocaine to minimize ICP elevations
- _____ IV load then q6hours.
 - q6hr serum _____ and _____ (don't rely on the Chem 7 calculated osmolarity)
 - Hold mannitol if Na > 152 mEq/L or osmolarity > 305 mOsm/L
- Intubate and _____ until pCO₂ is 25-30 on ABG. Decreasing pCO₂ by 5-10 mmHg will lower ICP by 20-30 mmHg. This effect lasts less than a few hours and should only be used as a temporary measure.
- _____

Spinal cord trauma (SU2 p157)

4. What is the treatment for anterior spinal cord syndrome following a traumatic injury?

- Assess and manage Airway, Breathing, and Circulation first. Keep spine stabilized
- If hypotension, aggressively bolus fluids, but limit fluids once normotensive to avoid cord swelling.
- Immediate high-dose IV steroids (ideally 8 hours) – methylprednisolone 30mg/kg initial IV bolus then 5.4 mg/kg per hour for 23 hours
 - Controversial but still considered the standard of care at most hospitals
 - "A treatment option" rather than treatment standard according to American Academy of Neuro. Surgeons and American Academy of Emergency Medicine
 - only used in non-penetrating spinal cord injuries without multi-system trauma
- CT and MRI of the spinal cord
- Once stabilized, decompression via closed reduction (halo headpiece and 5-15 lbs of weight) or surgical intervention

Neck trauma (SU2 p157)

5. What are the different zones of the neck and structures contained in each zone?

Zone	Landmarks	Structures Contained
I	Clavicle → cricoid cartilage	Great vessels, aortic arch, trachea, esophagus, lung apices, cervical spine, spinal cord, and cervical nerve roots
II	Cricoid cartilage → angle of the mandible	Carotid and vertebral arteries, jugular veins, pharynx, larynx, trachea, esophagus, cervical spine, and spinal cord
III	Angle of the mandible → base of the skull	Salivary and parotid glands, esophagus, trachea, cervical spine, carotid arteries, jugular veins, major cranial nerves

6. What work-up is indicated for a penetrating injury to the different zones of the neck when the platysma has been violated?

- Airway, Breathing, Circulation
 - Very low threshold for intubation in these patients
 - Assess for injury to the lung especially in zone I injuries
- Oxygen, 2 large bore IVs (e.g., 14 gauge), type & cross blood
- If unstable as a result of this injury or obvious bleeding or rapidly expanding hematoma → stat to the OR for surgical exploration (Do not explore the wound in the ER.) While waiting, do the following:
 - Direct pressure to any bleeding sites
 - If bleeding persists, consider placing a Foley cath into the wound and fill with NS to control bleeding
 - If stat surgery consult is delayed and bleeding persists, consider attempt to explore wound and clamp bleeding
- Zone I – assess with _____
- Zone II – _____ or (Doppler U/S + selective exploration)(institution dependent)
- Zone III – _____ + triple endoscopy

Chest trauma (SU2 p157)

7. What CXR findings might indicate a ruptured thoracic aorta?

_____, loss of aortic knob, pleural cap, deviation of the trachea and esophagus to the right, and depression of the left main stem bronchus

8. What are the signs of tension pneumothorax? What is the treatment?
 - Signs: absent breath sounds and hyperresonance to percussion (hollow sound) on the affected side, distended neck veins, hypotension
 - Treatment:
 - Immediate _____
 - If delay in chest tube placement, _____ on the affected side (2nd or 3rd IC space at midclavicular line or 5th IC space at midaxillary line)
9. What is a flail chest, and what is the classic presentation?
 - Flail chest is a free-floating portion of the chest wall that moves paradoxically to the rest of the chest wall (inward motion with inspiration) and results from 3 or more sequential rib fractures
 - Patients may have muscle splinting due to pain which may conceal the paradoxical motion of the chest wall
 - Mechanism of injury is usually direct impact of the steering wheel or crush injury
10. What is the treatment for a flail chest?
 - Oxygen supplementation
 - Close monitoring for early signs of respiratory compromise
 - (Placing an object (e.g., sandbag) to the affected region to stabilize the segment is no longer done due to the consequence of restricting chest expansion)
 - BiPAP by mask or endotracheal intubation with mechanical ventilation
 - _____ (otherwise the patient may become hypoxic from limiting breathing due to pain)

Abdominal trauma (SU2 p158)

11. What are the initial steps in the management of an abdominal stab wound presenting to the ER?
 - Airway, Breathing, Circulation
 - if hypotensive → _____
 - Abdominal exam
 - Signs of peritonitis (peritoneal irritation) → _____
 - Explore the stab wound under local anesthesia → if penetrating or unable to assess, then admit for serial 24 hour exams → surgical exploration if peritonitis, hemodynamic instability develops, or positive on additional testing (listed below)
 - NG tube – to decompress stomach and rule out blood in the stomach
 - Urinary catheter

Additional possible testing in the stable patient not already needing surgical exploration:

 - Diagnostic Peritoneal Lavage (DPL) if indicated
 - Upright CXR – to identify hemo- or pneumothorax and/or intraperitoneal air
 - Diagnostic ultrasound – to identify hemoperitoneum
 - Abdominal CT with contrast
 - Diagnostic laparoscopy
12. What are the next steps in the management of blunt abdominal trauma in a patient with stable vital signs?
 - Airway, Breathing, Circulation (Primary Survey then Secondary Survey)
 - Establish IV access at two sites with large bore IVs
 - NG tube and Foley
 - _____
 - Stat H&H +/- Blood type and cross
13. What are the next steps in the management of a patient with blunt abdominal trauma and unstable vital signs?
 - Primary and secondary survey
 - Assess for and manage pelvic fracture
 - FAST (Focused Assessment with Sonography for Trauma)
 - If blood in pelvis → _____
 - If no blood in pelvis → possible retroperitoneal hemorrhage → _____
 - If FAST inconclusive → _____
 - If no blood in pelvis and angiography is normal, then _____ + observation +/- admission

14. What is the treatment for a retroperitoneal hematoma?

- If penetrating injury or exsanguination into abdomen (bloody peritoneal aspirate) → _____
- If blunt trauma without blood in the abdomen →
 - Follow _____
 - If hemodynamically unstable or falling H&H → _____

Genitourinary and pelvic trauma (SU2 p158)

15. What is the immediate treatment for a patient with a pelvic fracture?

- Primary and secondary survey including a thorough neurovascular examination
- IV Fluid +/- blood
 - Ultrasound (FAST) to assess for fluid in the pelvis → if no fluid in pelvis and patient is hemodynamically unstable → _____ to detect bleeding missed by FAST
 - If blood detected → _____
 - If hemodynamic instability but no blood detected → consider retroperitoneal hemorrhage → _____
- _____ until the external fixator is placed (a bedsheet twisted and tied tightly around the pelvis can be used if nothing else is available)
- Assess for bladder and urethral injury with retrograde cystourethrogram
- If extraperitoneal bladder rupture → _____
- If intraperitoneal bladder rupture → _____

16. What are the classic signs for a urethral injury? What study can be used to confirm this?

- Look for _____, a high-riding "ballotable" prostate, or absence of palpable prostate
- If signs of injury → _____ to rule out injury prior to Foley catheter placement

17. What is the classic sign for a bladder injury? What study can be used to confirm this?

- Hematuria is most frequently seen in bladder injuries
- A _____ can be used to diagnose the bladder injury and determine if it is an intraperitoneal or extraperitoneal rupture
- If extraperitoneal bladder rupture → _____
- If intraperitoneal bladder rupture → _____

Abuse and Sexual Assault (SU2 p159 – SU2 p160)

18. What antibiotic prophylaxis should be provided for rape victims? What other prophylactic measures should also be taken?

- _____ 125mg IM (gonorrhea)
- _____ 1g PO or _____ 100mg PO bid for 7 days (chlamydia)
- _____ 2g PO (Trichomonas)
- Hepatitis B vaccine #1 of 3 (if not yet vaccinated) +/- Hep B immune globulin (not standard of care)
- _____ for 3-7 days with follow-up for further counseling. Common prophylactic regimens:
- antiemetic (Phenergan 12.5mg 1-2 PO q4-6 hours prn n/v) for nausea caused by HIV meds and pregnancy prophylaxis
- levonorgestrel (Plan B) 0.75mg PO → repeat dose in 12 hours (alternatively, both doses can be taken at once for improved compliance) (other options for emergency contraception discussed in Gyn lecture)

End of Session Quiz – Trauma

1. HYQ: What radiographic study is used to diagnose injury to the urethra?
2. HYQ: What are the symptoms of a basilar skull fracture?
3. HYQ: Chest trauma + hypotension + JVD + distant heart sounds → What is the next step in the management of this patient?
4. HYQ: Chest trauma + hypotension + JVD + respiratory distress → What is the next step in the management of this patient?
5. HYQ: What is the next step in the evaluation of penetrating injuries to the different zones of the neck?
6. HYQ: What interventions are effective in the management of elevated intracranial pressure?
7. What is the next step in the evaluation of the following patients?

Pelvic fracture + DPL shows blood in the pelvis	
Pelvic fracture + DPL shows urine in the pelvis	
Pelvic fracture + DPL shows nothing + hemodynamic instability	
Blunt abdominal trauma + unstable vital signs + FAST shows fluid in pelvis	
Blunt abdominal trauma + unstable vital signs + FAST shows no fluid in pelvis	
Blunt abdominal trauma + unstable vital signs + FAST inconclusive	
Blunt abdominal trauma + stable vital signs	
Abdominal stab wound + hypotensive or signs of peritonitis	

8. What additional studies can be performed in the case of a stable patient with an abdominal stab wound that penetrated the peritoneum?

Basic ICU & Surgical Concerns

Hemodynamic Stability (SU2 p161 – SU2 p163)

1. What are some of the complications/reactions that can arise from blood transfusions?
 - Nonhemolytic febrile reactions (3% of transfusions) – fevers, chills, rigors, malaise, onset 1-6 hours after transfusion
 - Minor allergic reactions (3% of transfusions) – urticaria
 - Acute hemolytic transfusion reaction (1 in 250,000) – onset during transfusion, fever, chills, nausea, flushing, tachycardia, tachypnea, hypotension, usually due to _____
 - Delayed hemolytic reaction – onset _____ after transfusion, slight fever, falling H/H, mild increase in _____
 - Anaphylactic transfusion reactions (1 in 50,000) – shock, hypotension, angioedema, respiratory distress
 - Posttransfusion purpura – _____ developing _____ after transfusion, primarily in women
 - Infectious diseases (Hep B, Hep C, HIV, HTLV)

Surgical Emergencies (SU2 p165 – SU2 p166)

2. What is the typical ER lab work-up for a patient with acute abdominal pain?
3. What are the signs and symptoms of acute mesenteric ischemia?
 - Sudden onset of severe abdominal pain (periumbilical) that is _____
 - Vomiting and diarrhea
 - Condition that could cause emboli formation (e.g., atrial fibrillation)
 - Early exam: mostly normal, abdominal distention, +/- occult blood on stool
 - Late exam (bowel infarction): abdominal distention, absent bowel sounds, peritoneal signs, feculent odor to the breath
4. What is the treatment for acute mesenteric ischemia?
 - General care
 - Hemodynamic monitoring and support. Dobutamine or dopamine if necessary.
 - Broad spectrum antibiotics
 - _____
 - _____ for diagnosis and treatment
 - Specific care
 - Heparin anticoagulation
 - Papaverine infusion to decrease arterial vasospasm
 - If embolism → embolectomy and resection of necrotic bowel → second-look laparotomy in 24-48 hours to remove additional necrotic bowel
 - If thrombus → thrombectomy and revascularization (e.g., supraceliac aorta graft to the involved intestinal artery) → resection of necrotic bowel and second-look laparotomy as needed → aspirin daily after recovery
 - Resection of necrotic bowel and bypass
5. What are the classic signs/symptoms of chronic mesenteric ischemia?
 - AKA intestinal angina
 - dull, crampy, postprandial epigastric pain within the first hour after eating then subsiding over 2 hours
 - weight loss (due to food aversion to avoid postprandial pain)
 - possibly nausea, vomiting, and early satiety
 - abdominal bruit (50%)
6. What are the treatment options for chronic mesenteric ischemia?

End of Session Quiz – Basic ICU and Surgical Concerns

1. What is the usual lab panel ordered in a patient presenting to the ER with generalized abdominal pain?
2. What is the usual time frame for stopping warfarin prior to surgery? (SU2 p164)
3. What interventions are helpful in optimizing lung function in the post-op period in patients with preexisting lung disease? (SU2 p163)
4. Which vasopressor matches the following statement? (SU2 p162)

Theoretically causes renal vasodilation	
High doses optimize the alpha-1 vasoconstriction	
ADH analogue	
Best choice for anaphylactic shock	
Best choice for septic shock	
Best choice for cardiogenic shock	
Causes vasoconstriction but with bradycardia	

5. What type of immunodeficiency increases the risk of anaphylactic transfusion reaction? (SU2 p162)
6. Which blood product is most appropriate in the following scenarios? (SU2 p161)

Severe anemia due to autoimmune hemolytic anemia	
Hemophilia	
DIC	
Shock due to trauma or postpartum hemorrhage	
To maintain blood pressure during large volume paracentesis	
Hemorrhage due to warfarin overdose	
Need for vWF-rich blood product	
Thrombocytopenia	

7. What lab findings suggest hepatic disease during a pre-operative work-up? (SU2 p164)
8. What are the preferred vessels in the placement of a Swan-Ganz catheter? (SU2 p161)
9. When is the greatest risk for a postoperative MI? What is recommended perioperatively for patients with known CAD? (SU2 p163)

Cardiovascular Part 1

Ischemic Heart Disease (SU2 p2 – SU2 p9)

1. What is the most likely cause of chest pain in the following scenarios:
 - ST segment elevation only during brief episodes of chest pain
 - Patient is able to point to localize the chest pain using one finger
 - Chest wall tenderness on palpation
 - Rapid onset sharp chest pain that radiates to the scapula
 - Rapid onset sharp pain in a 20-year-old and a/w dyspnea
 - Occurs after heavy meals and improved by antacids
 - Sharp pain lasting hours-days and is somewhat relieved by sitting forward
 - Pain made worse by deep breathing and/or motion
 - Chest pain in a dermatomal distribution
 - Most common cause of noncardiac chest pain
 - Acute onset dyspnea, tachycardia, and confusion in a hospitalized patient
 - Pain began the day following an intensive new exercise program
 - Widened mediastinum on CXR
2. What is the role of percutaneous transluminal coronary angioplasty (PTCA) in a patient with coronary artery disease?
 - If stable angina without history of MI, angioplasty with stenting (avg. cost of \$38,000) is no better than medical management alone (COURAGE trial, NEJM 2007;356:1572)(n=2,287)
 - If medical therapy fails to improve stable anginal symptoms, then PTCA (or CABG) is recommended
 - If the patient with angina meets high-risk criteria, then PTCA (or CABG) is recommended
 - If severe CAD such as significant proximal left main CAD, or 3 vessel CAD in a patient with LVEF < 50%, then CABG is indicated rather than PTCA
3. What medications are used in the treatment of Prinzmetal's angina?

End of Session Quiz – Cardiovascular Part 1

1. HYQ: What is the most common cause of chest pain in a patient with sudden tearing chest pain radiating to the back?
2. HYQ: What is the most common cause of death in patients with an acute myocardial infarction?

3. Which lipid-lowering agent matches the following description?

SE: Facial flushing	
SE: Elevated LFTs, myositis	
SE: GI discomfort, bad taste	
Best effect on HDL	
Best effect on Triglycerides	
Best effect on LDL/cholesterol	
Binds <i>C. diff.</i> toxin	

4. What are the recommendations for LDL levels in patients based on their CAD risk? (SU2 p5)
5. How can the flushing reaction of niacin be prevented?
6. What are the mechanisms of action of the following drugs?
 - Streptokinase
 - Aspirin
 - Clopidogrel
 - Abciximab
 - Tirofiban
 - Ticlopidine
 - Enoxaparin
 - Eptifibatide
7. What type of heart block is described by the following statements?

PR interval prolonged more than 0.2s (5 small boxes)	
no relationship between P waves and QRS	
PR interval becomes progressively longer until a beat is blocked	
PR interval fixed, but with occasional blocked beats	

8. What medications should all post-MI patients receive as outpatients?

Cardiovascular Part 2

Arrhythmias (SU2 p9 – SU2 p14)

1. What basic EKG rhythm matches the following statement?

Narrow QRS not a/w p waves, rate 60	
Chaotic, erratic, wide QRS	
Wide QRS not a/w p waves, rate > 40 but < 100	
Narrow QRS not a/w p waves, rate > 100	
Wide QRS, not a/w p waves, rate 20-40	
Wide QRS, not a/w p waves, rate > 100	
Narrow QRS not a/w p waves, rate > 60 but < 100	
Erratic QRS that varies in amplitude in a repeating pattern	

2. What is the difference between a wandering pacemaker and multifocal atrial tachycardia (MFAT)?

- Wandering pacemaker (AKA multifocal atrial rhythm) has ≥ 3 different p wave morphologies with a ventricular rate of _____
- Multifocal atrial tachycardia has ≥ 3 different p wave morphologies with a ventricular rate of _____
- Multifocal atrial bradycardia has ≥ 3 different p wave morphologies with a ventricular rate of _____

Antiarrhythmics Quiz

1. HYQ: What is the treatment for premature atrial contractions? →

2. HYQ: Which antiarrhythmic should be avoided in patients with preexisting lung disease? →

3. HYQ: What is the drug of choice for acute-onset atrial fibrillation with rapid ventricular rate in a patient with Wolf-Parkinson-White? →

4. HYQ: An EKG shows complete independence of P waves and QRS complexes. What is the next step in the management? →

5. HYQ: What type of heart block in which the PR interval is progressively lengthened with each beat until a ventricular beat is dropped? →

6. HYQ: What is the drug of choice in paroxysmal supraventricular tachycardia? →

7. What type of heart block is described by the following statements?

PR interval prolonged more than 0.2sec (5 small boxes)	
No relationship between p waves and QRS	
PR interval becomes progressively longer until a beat drops	
PR interval fixed, but with occasional dropped beats	

Heart Failure (SU2 p15 – SU2 p16)

1. What are Kerley B lines?

Thickening of the subpleural interstitium (interlobular septa) about 1cm in length and 1mm in thickness seen in the periphery of the lower lung zones on CXR resulting from one of the following diseases:

- Left ventricular failure, mitral valve disease
- Lymphatic obstruction, lymphangitis carcinomatosa
- Asbestosis, sarcoidosis

Valvular Diseases (SU2 p17, SU2 p18)

Recap/Intro to Valvular Diseases

2. Which heart valves should blood be flowing through during systole?

3. What are the systolic heart murmurs?

4. What heart valves should blood be flowing through during diastole?

5. What are the diastolic heart murmurs?

Pericardial Diseases (SU2 p17, SU2 p20)

6. Kussmaul's sign vs. Pulsus paradoxus

	Kussmaul's sign	Pulsus paradoxus
Event	JVD with inspiration	Decreased SBP by more than 10 mmHg with inspiration
Mechanism	Decreased capacity of RV	Decreased capacity of LV
Disease	Constrictive pericarditis >> tamponade	Cardiac tamponade >> pericarditis

End of Session Quiz – Cardiovascular Part 2

1. What is the classic appearance of the heart on a CXR of a patient with pericardial effusion?
2. HYQ: What would you find on physical exam of a patient with pericardial effusion?
3. HYQ: In what scenarios might you see Kussmaul's sign (increased JVD with inspiration)?
4. HYQ: What disease has signs of heart failure + diabetes mellitus + elevated LFTs?
5. HYQ: In which etiology of restrictive cardiomyopathy is the pathology reversible with phlebotomy?
6. HYQ: What is the next step in the work-up of a low-grade systolic murmur in an otherwise healthy, asymptomatic patient?
7. HYQ: What is the next step in the work-up of a diastolic murmur in an otherwise healthy, asymptomatic patient?
8. HYQ: Short systolic murmur at the cardiac apex that decreases with squatting and is sometimes associated with a benign chest pain and lasts only a few seconds:
9. HYQ: When might subclinical mitral stenosis from rheumatic heart disease become clinically apparent?
10. HYQ: What commonly causes heart failure in young patients?
11. What is the treatment for cardiac tamponade?
12. What medications are important in the outpatient treatment of chronic congestive heart failure?
13. What is the acute treatment for exacerbations of congestive heart failure?

14. What type of heart murmur fits the following description? (FA2 p62, B&W p41)

Diastolic murmur heard best at left lower sternum, that increases with inspiration	
Late diastolic murmur with an opening snap (no change with inspiration)	
Systolic murmur heard best in the second right interspace	
Systolic murmur heard best in the second left interspace	
Late systolic murmur best heard at the apex	
Diastolic murmur with a widened pulse pressure	
Holosystolic murmur that is louder with inspiration at the left lower sternum	
Holosystolic murmur heard at the apex and radiates to the axilla	

15. HYQ: What is the treatment for premature atrial contractions?

Cardiovascular Part 3

Hypertension (SU2 p22 – SU2 p23, SU2 p24, SU2 p25, SU2 p26)

1. What blood pressures define prehypertension? How should prehypertension be managed?
 - Prehypertension = SBP _____ or DBP _____
 - If the patient's SBP is > 130 or DBP > 80 and has diabetes, chronic kidney disease, end-organ damage, or cardiovascular disease then medical management with an antihypertensive is indicated
 - If none of the above comorbidities, then non-pharmacologic management with weight reduction, sodium restriction, increased physical activity, and avoidance of excess alcohol
2. What tests can be used to diagnose renal artery stenosis?
 - _____ – gold standard but invasive
 - _____ of renal arteries – most frequently used screening test
 - _____ – capable of detecting bilateral renal artery stenosis (unlike CT or MRA), but time consuming (2 hours) and must have well-trained operator
 - _____ with IV contrast
 - _____

Shock (SU2 p23, SU2 p26)

3. Know the different types of shock and how they present: (Very HY!)

Cause of shock:	MAP	SVR	HR	PCWP (left atrial pressure)	PCWP after fluid challenge	Treatment
Hypovolemic (often due to hemorrhage)	Low	High	High	Low	Unchanged or high	Fluids
Cardiogenic	Low	High	Variable	High	Very high	Dopamine or dobutamine
Extracardiac obstruction (tension pneumothorax, massive hemothorax)	Low	High	High	Low or normal	Unchanged or increased	Chest tube
Extracardiac obstruction (cardiac tamponade)	Low	High	High	High	High or very high	Pericardiocentesis
Neurogenic	Low	Low	Low	Low or normal	High	IVF, pressors, Atropine for HR
Septic	Low	Low	High	Low or normal	High	Fluids, Abx, NE

End of Session Quiz – Cardiovascular Part 3

1. HYQ: Hypertension + depression + kidney stones = ?
2. HYQ: What complications can arise from the use of vasopressors such as norepinephrine in treating shock?
3. HYQ: What intervention is most effective at reducing blood pressure?
4. HYQ: What is the preferred initial antihypertensive in a patient with no comorbidities?

5. Which antihypertensive class is first-line in patients with the following problems?

diabetes	
heart failure (multiple)	
BPH	
left ventricular hypertrophy	
Hyperthyroidism	
osteoporosis	
benign essential tremor	
post-menopausal female	
migraines	

6. What is the most likely cause of secondary hypertension given the following findings?

Hypertension measures in arms but low BP in LE	
Proteinuria	
Hypokalemia	
Tachycardia, diarrhea, heat intolerance	
Hyperkalemia	
Episodic sweating, tachycardia	

7. Which antihypertensive drug fits the following side effect?

First dose orthostatic hypotension	
Hypertrichosis	
Dry mouth, sedation, severe rebound HTN	
Bradycardia, impotence, asthma exacerbation	
Reflex tachycardia	
Cough	
Avoid in patients with sulfa allergy	
Angioedema	
Development of drug-induced lupus	
Cyanide toxicity	

8. Compare the vasodilating effects of the following:

Nitroglycerin	
Dihydropyridine CCBs	
Hydralazine	
Nitroprusside	

9. What are the HACEK bacteria? (SU2 p22)

Cardiovascular Part 4

Vascular Diseases (SU2 p23, SU2 p25, SU2 p27 – SU2 p29)

Aortic conditions (SU2 p23)

1. What are the indications for the repair of an abdominal aortic aneurysm (AAA) in order to prevent future rupture?
 - Diameter greater than _____
 - Increase in diameter by more than _____ in a _____ month interval (should be receiving abd sono q6m)
 - Symptomatic (e.g., tenderness, pain in abdomen or back)

Arterial condition-peripheral vascular disease (PVD) (SU2 p25)

2. What is the work-up for a patient with peripheral artery disease (PAD) considering surgical corrections?
 - Generally the steps of surgical evaluation for PVD are as follows: Physical Exam → ankle-brachial index (ABI) (to confirm diagnosis) → segmental pressures and/or LE duplex/doppler (to determine lesion location and morphology) → _____ (to map the disease extent and locations in order to determine the best treatment option) → surgery
 - _____ prior to surgery because PAD patients are likely to also have CAD which may require intervention prior to PAD surgery
3. What are the components of medical, conservative management of peripheral artery disease (PAD)?
 - Smoking cessation
 - Glucose and BP control
 - Daily exercise to increase collateral flow
 - Cilostazol (Pletal) 100mg PO BID to improve flow to LE and decrease claudication. It is better than pentoxifylline (Trental) 400mg tid. Contraindicated if any heart failure due to increased mortality.
 - Aspirin or Plavix qd to reduce cardiovascular events
 - Statin therapy to reduce cardiovascular events and increase pain-free walking distance
 - Other possibly effective therapies: Trental (second-line to Pletal), Ginkgo biloba
 - Not effective: vitamin E

Venous conditions (SU2 p27)

4. What options are available to treat varicose veins?
 - Weight reduction, avoidance of prolonged standing, leg elevation
 - Compression stockings: OTC support stockings, Class I stockings (20-30 mmHg), or Class II stockings (30-40 mmHg)
 - Sclerotherapy (injection of a substance directly into the vein that causes injury and thrombosis)
 - Surgery involving ligation of the long saphenous vein or short saphenous vein
5. What is an Unna boot, and when is its used indicated?
 - Inelastic bandage that is impregnated with zinc oxide paste + calamine lotion + glycerine + gelatin
 - Indicated for ulcer arising from chronic venous insufficiency
 - Patients prefer to use hydrocolloid dressing that can be changed at home q5-7 days instead of the Unna boot which must be placed by trained personnel q1-3 weeks. The effectiveness in ulcer healing is the same for both
6. What are the different methods available for the primary prevention of DVT?
 - Low dose unfractionated heparin – 5,000 units SubQ q8-12 hours (started 2 hours preoperatively) (q8 hour dosing is more effective at DVT prevention than q12 hour dosing)
 - Low molecular weight heparin (LMWH) – enoxaparin (Lovenox) 30mg SubQ q12 hours or 40mg SubQ qd
 - Fondaparinux (Arixtra) 2.5mg SubQ qd
 - Spontaneous compression devices (SCDs) (AKA intermittent pneumatic compression) – used continuously until the patient is fully ambulatory
 - Ambulation
 - Oral anticoagulation (INR 2-3) – not as effective as LMWH but better than aspirin
 - Compression stockings are only effective in low risk post-op general surgery or neurosurgery patients
 - Aspirin is better than nothing but not nearly as good as other anticoagulants

7. What is the treatment for superficial thrombophlebitis?
- Removal of the IV catheter if present
 - External compression with support stockings or elastic bandages
 - _____
 - If in lower extremity (e.g., saphenous vein, especially above the knee) → consider anticoagulation with one of the following to reduce DVT/PE risk:
 - Low-dose SubQ heparin (e.g., 5,000 units bid-tid)
 - Low molecular weight heparin (e.g., 40 mg SubQ daily)
 - Oral anticoagulation
 - If extension into the femoral vein or within a few centimeters of the sapheno-femoral junction → anticoagulation is a must (with one of the options above)
 - If saphenous vein thrombosis in the leg and above the knee → follow-up ultrasound in 3-7 days to rule-out DVT
 - If suppurative drainage → IV _____ + broad-spectrum coverage + surgical excision

Vasculitis (SU2 p27)

8. How is Kawasaki's disease diagnosed?
- Fever (> 40C or 104F) lasting at least five days in addition to 4 of the following 5 symptoms (CRASH):
- _____ (bilateral, non-exudative, painless)
 - _____ (truncal)
 - _____ of the cervical lymph nodes
 - _____ and diffuse mucus membrane erythema
 - Hands and feet have edema with induration, erythema, or desquamation
- Coronary artery aneurysms can occur within weeks of the illness onset, but are not included in the diagnostic criteria.

9. How is Kawasaki's disease treated?
- IVIG (2g/kg over 8-12 hours) (ideally within the first 10 days of illness)
 - High-dose aspirin (80-100 mg/kg/day in four divided doses) in the acute phase of the illness continued until 48 hours after fever resolution, followed by low-dose aspirin (3-5 mg/kg/day) until inflammatory markers (platelets, ESR) return to normal (usually 6 weeks)
 - (Steroids are not indicated and are of no proven benefit.)
 - Echocardiogram in the acute phase and 6-8 weeks later

Pediatric Cardiology (SU2 p29 – SU2 p32)

10. What is the treatment for ventricular septal defects?
- Small VSD
- Monitor via routine echo and offer reassurance. 40% close by 3 years and 75% close by 10 years
- Large VSD
- Monitor nutrition and weight gain very closely due to higher risk of FTT
 - Treat CHF with _____
 - Influenza vaccine and winter palivizumab if younger than 2 (for RSV prevention)
 - Treat respiratory infections as needed
 - Surgical repair if:
 - Medical management fails
 - Signs of pulmonary hypertension (developing Eisenmenger's syndrome) at < 1yr of age
 - Size does not reduce over time
 - * Endocarditis prophylaxis is only required in children with a repaired VSD with residual defect for dental and respiratory tract procedures (not GI or GU procedures) according to 2007 American Heart Association guidelines
11. Ebstein's anomaly
- A/w maternal _____ use
 - _____ are displaced into right ventricle, hypoplastic right ventricle, tricuspid regurg or stenosis
 - 80% have a patent foramen ovale with a R → L shunt
 - Dilated right atrium → increased risk of _____
 - Physical exam: widely split S2, tricuspid regurgitation
 - Rx: PGE, digoxin, diuresis, propranolol for SVT

End of Session Quiz – Cardiovascular Part 4

1. HYQ: A 6 week-old infant presents to the Pedi ER for irritability and is found to have signs of left-sided heart failure. An EKG is interpreted as a left-sided MI. → What is the most likely diagnosis?
2. HYQ: What class of medications is indicated in patients with a hereditary prolongation of the QT interval in order to prevent episodes of ventricular fibrillation? →
3. Which type of vasculitis fits the following descriptions?
 - weak pulses in upper extremities
 - necrotizing granulomas of lung and necrotizing glomerulonephritis
 - necrotizing immune complex inflammation of visceral/renal vessels young male smokers
 - young Asian women
 - young asthmatics
 - infants and young children; involved coronary arteries
 - most common vasculitis
 - a/w hepatitis B infection
 - occlusion of ophthalmic artery can lead to blindness
 - perforation of nasal septum
 - unilateral headache, jaw claudication
4. What is the next step in the management of a patient with a DVT that has a high likelihood of falling? (SU2 p27)
5. What are the components of the medical management of peripheral artery disease? (SU2 p27)
6. What are the indications for operating on an abdominal aortic aneurysm? (SU2 p25)
7. Who should be screened for an abdominal aortic aneurysm?

Pulmonary Part 1

Respiratory Infections (SU2 p33 – SU2 p39, SU2 p40)

1. What are the diagnostic features of a peritonsillar abscess? What is the treatment?
 - Infection between the tonsil and pharyngeal constrictors caused by *Strep. pyogenes*, *Staph. aureus*, and/or *Bacteroides spp*
 - Severe sore throat, fever, muffled “hot potato” voice
 - Classic diagnostic feature is obvious abscess on the tonsil or deflection of the uvula to the opposite side
 - Other signs and symptoms include trismus (“lockjaw”), and drooling

Treatment

- Needle aspiration or I&D
- Pain meds + antibiotics
 - Augmentin 875mg PO bid x10 days, or
 - Clindamycin 300mg or 450mg PO q6 hours x10 days

Sinusitis

2. What are the diagnostic features of acute bacterial sinusitis that distinguish it from the common cold?
 - Rhinosinusitis symptoms lasting seven or more days and any of the following:
 - Purulent nasal discharge
 - Maxillary tooth or facial pain (especially unilateral)
 - Unilateral maxillary sinus tenderness
 - Worsening symptoms after initial improvement
 - Radiologic tests are of little value because they cannot distinguish acute viral sinusitis from acute bacterial sinusitis, but CT of the sinuses can rule out sinusitis if another etiology of the symptoms is being considered.
3. What is the treatment for acute bacterial sinusitis?
 - Observation and symptom relief alone in otherwise healthy patients with mild pain and temp < 101F
 - Nasal saline irrigation
 - Analgesics
 - Topical decongestant (e.g., Afrin) or systemic decongestant (e.g., Sudafed)
 - Antibiotics:
 - First line: Amoxicillin 1g tid x10-14 days > Augmentin 875mg bid x10-14 days
 - Second line: Cephalosporins (Omnicef 300mg bid x10 days) > Fluoroquinolones (Levaquin 750mg qd x5 days, or moxifloxacin 400mg qd x5 days) or Bactrim > Macrolides (Zithromax 500mg qd x3 days)
 - +/- Intranasal glucocorticoids – may reduce inflammation and symptoms, but studies lacking
4. What is the treatment for chronic bacterial sinusitis (> 3 months of symptoms)?
Combined therapy:
 - Oral steroids (e.g., prednisone 20mg bid x 5 days → then qd x 5 days)
 - Oral antibiotics for 3 – 6 weeks (Augmentin or clindamycin)
 - Intranasal saline irrigation
 - Intranasal steroids indefinitely
 - If underlying allergies → antihistamines, antileukotrienes (e.g., Singulair), and/or allergen immunotherapy
 - If nasal polyps refractory to steroids → surgical debulking
 - If allergic fungal sinusitis → sinus surgery → prolonged course of steroids
5. What are the potential complications of sinusitis?
6. What is the classic presentation of allergic fungal rhinosinusitis? How is the diagnosis made?
 - Chronic rhinosinusitis
 - In this disease the sinuses are opacified with thick “allergic mucin” that is colonized with fungus (not to be confused with invasive fungal disease).
 - The diagnosis is usually made at the time of surgery when the “allergic mucin” is identified.

Lower respiratory infections (SU2 p37)

7. What are the most common causes of pneumonia and empiric antibiotics used for children in the age ranges of newborn, 1-4 months, 4 months-4 years, and 5-15 years?

Age	Bugs	Empiric Treatment
Newborn	GBS > Gram neg coliforms, <i>Listeria</i> , <i>Chlamydia trachomatis</i>	+/- Vancomycin (if MRSA is a concern) (for <i>Chlamydia</i> use Erythromycin)
1 – 4 months	RSV, <i>Chlamydia trachomatis</i> , Parainfluenza, <i>Bordetella</i> , <i>Strep. pneumo</i> , <i>Staph. aureus</i>	+/- cefotaxime
4m – 4 years	RSV or other virus*, <i>Strep. pneumo.</i> , <i>H. flu.</i> , <i>Mycoplasma</i> , <i>Staph. aureus</i>	
5 – 15 years	<i>Strep pneumo.</i> > <i>Mycoplasma</i> , <i>C. pneumoniae</i> , other viruses*	1) Amoxicillin + clarithromycin (or erythromycin) 2) Azithromycin 3) Amoxicillin + doxycycline

* Other viruses include rhinovirus, influenza, parainfluenza, adenovirus, coronavirus

8. What are the indications for pneumococcal vaccination in adults?
- 65 years old or older
 - Serious long-term health problem such as heart disease, sickle cell disease, alcoholism, leaks of cerebrospinal fluid, lung disease (not including asthma), diabetes, or liver cirrhosis
 - Resistance to infection is lowered due to Hodgkin's disease; multiple myeloma; cancer treatment with X-rays or drugs; treatment with long-term steroids; bone marrow or organ transplant; kidney failure; HIV/AIDS; lymphoma, leukemia, or other cancers; nephrotic syndrome; damaged spleen or no spleen
 - Cigarette smokers between the age of 19 and 54
9. What antibiotics can be used in the treatment of *Pseudomonas pneumonia*?
- An antipseudomonal beta-lactam (piperacillin-tazobactam, cefepime, imipenem, meropenem, aztreonam) must be added to one of the following for at least 2 weeks for adequate coverage:
- Antipseudomonal quinolone (ciprofloxacin, or levofloxacin 750mg)
 - Aminoglycoside (tobramycin, gentamicin, or amikacin) + azithromycin
 - Aminoglycoside (tobramycin, gentamicin, or amikacin) + antipseudomonal quinolone
10. What X-ray and lab findings would lead you to highly suspect PCP pneumonia as a cause of respiratory distress?
- CXR: diffuse, bilateral, interstitial infiltrates (most common finding)
 - CD4 usually < _____
 - _____ level usually > 220 (and a rising LDH despite appropriate treatment portends a poor prognosis)
11. What is the treatment for PCP (*Pneumocystis carinii* pneumonia)?
- 21 days of antibiotics. Choices include:
 - TMP-SMX (Clot (IV or PO)
 - Pentamidine (IV)
 - Primaquine (PO) + clindamycin (IV or PO)
 - If mod-severe disease (PaO₂ < 70mmHg, or A-a gradient > 35) → hospitalize + prednisone 40mg PO bid x5 days, then 40mg qd x5 days, then 20mg PO qd x11 days
12. What is the differential diagnosis (short-list) for ground-glass opacities (diffuse hazy infiltrate) of the lung on CXR?

13. Which infectious agent fits the following description:

- Common cause of pneumonia in immunocompromised patients
- Most common cause of atypical/walking pneumonia
- Common causative agent for pneumonia in alcoholics
- Can cause an interstitial pneumonia in bird handlers
- Often the cause of pneumonia in a pt with a history of exposure to bats and bat droppings
- Often the cause of pneumonia in a pt who has recently visited South California, New Mexico, or West Texas
- Pneumonia associated with "currant jelly" sputum
- Q fever
- A/w pneumonia acquired from air conditioners
- Most common cause of pneumonia in children 1-year-old or younger
- Most common cause of pneumonia in the neonate (B-28d)
- Most common cause of pneumonia in children and young adults (including college students, military recruits, and prison inmates)
- Common cause of pneumonia in pts with other health problems
- Most common cause of viral pneumonia
- Causes a Woolsorter's disease (a life-threatening pneumonia)
- Common bacterial cause of COPD exacerbation
- Common pneumonia in ventilator patients and those with cystic fibrosis
- Pontiac fever

14. What infectious agent is the cause of pneumonia based on the following lab test:

- Gram + cocci in clusters
- Gram + cocci in pairs
- Gram – rods in 80-year-olds
- Gram + cocci in neonate
- Gram – rods in neonate

15. How is the diagnosis of active TB made?

TB organisms seen in any of the following is sufficient to make the diagnosis:

- Sputum acid-fast stain – if seen in any of 3 samples ideally obtained qd over 3 days in early AM
- Sputum culture for TB (takes 1-8 weeks depending on the media used)
- Bronchoscopy with bronchoalveolar lavage (BAL) or biopsy

Acute Respiratory Distress Syndrome (ARDS) (SU2 p39)

16. What treatments are available when managing a patient with Acute Respiratory Distress Syndrome (ARDS)?

- Treat the underlying disease and provide supportive care in the ICU
- Mechanical ventilation with low tidal volumes (to minimize injury) and adequate PEEP (to recruit collapsed alveoli)
- Conservative fluid management to reduce pulmonary edema. Goal CVP 4-6 H₂O. (Furosemide and albumin may also be helpful to prevent pulmonary edema)
- Prone positioning improves oxygenation but does not improve survival
- Minimize oxygen consumption by preventing fever (anti-pyretics), minimizing anxiety and pain (sedative and analgesics), and limiting respiratory muscle use (paralytics) particularly in cases of asynchrony of the ventilator and patient's efforts
- Transfuse blood only if Hgb drops below 7 g/dL as transfusion may ↑ risk of death in ARDS patients

17. What methods of providing oxygen to a patient can be used in order to deliver a specified percentage of FiO₂?

- Nasal canula → 24-40% FiO₂ (FiO₂ increase by 3% for every 1L/min up to 6L/min)
- Face mask → 50-60% FiO₂
- Non-rebreather → 60-95% FiO₂
- CPAP → 80% FiO₂
- Mechanical vent → up to 100% FiO₂

End of Session Quiz – Pulmonary Part 1

1. In a patient with pulmonary edema, how can pulmonary capillary wedge pressure (PCWP) distinguish ARDS from cardiogenic edema?
2. What are the diagnostic characteristics of Acute Respiratory Distress Syndrome (ARDS)?
3. Which infectious agent fits the following descriptions?

Common cause of pneumonia in immunocompromised pts	
Most common cause of atypical / walking pneumonia	
Common causative agent for pneumonia in alcoholics	
Often the cause of pneumonia in a pt with a history of exposure to bats and bat droppings	
Often the cause of pneumonia in a pt who has recently visited Southern California, New Mexico, or West Texas	
Pneumonia associated with "currant jelly" sputum	
A/w pneumonia acquired from air conditioners	
Most common cause of pneumonia in children 1 year old or younger	
Most common cause of pneumonia in the neonate (Birth-28days)	
Most common cause of pneumonia in children and young adults (including college students, military recruits, and prison inmates)	
Common cause of pneumonia in pts with other health problems	
Most common cause of viral pneumonia	
Common bacterial cause of COPD exacerbation	
Common pneumonia in ventilator pts and those with cystic fibrosis	

4. What is the differential diagnosis of ground-glass infiltrates on CXR?
5. What is a normal A-a gradient? (SU2 p36) What causes a high A-a gradient? (SU2 p33)
6. What is the empiric treatment for pneumonia in a 2-month-old? In a 2-year-old?

Pulmonary Part 2

Obstructive Airway Diseases (SU2 p40 – SU2 p42)

Asthma (SU2 p40)

1. How is asthma managed using the different symptom based categories:

	Symptoms	FEV1	Medication
Mild Intermittent	≤ 2 daytime episodes/week or ≤ 2 nighttime episodes/month	≥80%	PRN albuterol
Mild Persistent	3-6 daytime episodes/week or 3-4 nighttime episodes/month	≥80%	PRN albuterol + low dose inhaled steroid +/- Singulair +/- cromolyn
Moderate Persistent	daily daytime episodes or > 1 nighttime episode/week	60 - 80%	PRN albuterol + mod dose inhaled steroid +/- long-acting β2-agonist +/- Singulair +/- theophylline
Severe Persistent	continual daytime episodes or frequent nighttime symptoms	<60%	PRN albuterol + high dose inhaled steroid + long- acting β2-agonist + PO steroid +/- Singulair +/- theophylline

Chronic bronchitis (SU2 p40) and Emphysema (later stage-COPD) (SU2 p41)

2. **COPD Staging**

- Stage 0 – normal spirometry in smokers or those with symptoms (e.g., chronic cough)
Stage 1 – FEV1/FVC < 70%, and FEV1 > 80% (mild)
Stage 2 – FEV1 50-80% (moderate)
Stage 3 – FEV1 30-50% (severe)
Stage 4 – FEV1 < 30% (or <50% with chronic resp failure) (very severe)

3. **COPD Management**

- Stage 0 – risk factor reduction + annual influenza vaccine
Stage 1 – above + PRN short-acting bronchodilator (albuterol, atrovent)
Stage 2 – above + long-acting bronchodilator (β2-agonist or anticholinergic (Spiriva))
Stage 3 – above + inhaled steroids
Stage 4 – above +/- theophylline + home O₂ if pulse-ox < 88%, pulmonary HTN, peripheral edema, or polycythemia → to goal of 90% pulse-ox

Bronchiectasis (SU2 p42)

4. What are the possible etiologies for bronchiectasis?

- Unknown etiology in 50% of patients
- Cystic fibrosis
- Immunodeficiency
- Dyskinetic cilia: Kartagener's syndrome (dextrocardia, sinusitis, bronchiectasis), autosomal dominant polycystic kidney disease (ADPKD)
- Pulmonary infections (TB, fungal, or lung abscess)
- Obstruction (e.g., foreign body aspiration, tumor, lymph nodes)
- Other etiologies: Young's syndrome, foreign body aspiration, rheumatoid arthritis, Sjogren's syndrome, allergic bronchopulmonary aspergillosis, cigarette smoking

Interstitial Lung Diseases and Other Lung Diseases (SU2 p45 – SU2 p47)

Idiopathic pulmonary fibrosis (IPF) (SU2 p45)

5. How is interstitial fibrosis diagnosed?

- CXR possible findings – normal in 10%, reticular pattern, nodular pattern, or honeycomb lung (poor prognosis)
- High resolution CT scan – greater diagnostic accuracy than plain films
- Serum markers including SP-A, SP-B, MCP-1, and KL-6
- Pulmonary function testing (PFTs) reveal restrictive lung disease with decreased TLC, FRC, and RV
- Lung biopsy is required to make the definitive diagnosis and determine the stage of disease

End of Session Quiz – Pulmonary Part 2

1. HYQ: What is the next step in the work-up of a patient with a solitary pulmonary nodule? →
2. Which type of lung cancer is associated with the following paraneoplastic syndromes?
 - Elevated ACTH → glucocorticoid excess → Cushing's syndrome
 - Elevated PTH related peptide → hypercalcemia
 - Elevated ADH → SIADH → hyponatremia
 - Antibodies to presynaptic Ca channels → Lambert-Eaton syndrome
3. HYQ: What is the initial treatment of a localized non-small cell lung cancer? (SU2 p45)
4. What defines mild persistent asthma? What is the outpatient management?
5. What are the classic radiological findings in idiopathic pulmonary fibrosis (IPF)? (SU2 p45)
6. What is the treatment for idiopathic pulmonary fibrosis (IPF)? (SU2 p46)
7. Which type of pneumoconiosis matches the following description? (SU2 p46)

Progressive fibrosis	
Increased risk of TB	
A/w working with electronics → increased cancer risk	
Malignant mesothelioma and bronchogenic carcinoma	

8. A patient chronically has an FEV1 of 40%. What medications are used in the daily management?
9. Patient with chronic sinusitis + hemoptysis + hematuria → What is the treatment?
10. Patient with anti-glomerular basement membrane antibodies → What is the treatment?
11. A smoker has rapid onset JVD, facial swelling, and altered mental status → What is the treatment?

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Pulmonary Part 3

Vascular and Thromboembolic Pulmonary Conditions (SU2 p47 – SU2 p48)

1. What studies are helpful in the diagnosis of pulmonary embolism?
 - ABG – respiratory alkalosis due to hyperventilation but low PO₂ due to hypoxia
 - D-dimer – a normal d-dimer makes PE much less likely and an elevated d-dimer is nonspecific
 - U/S of LE veins to rule out DVT – presence of DVT makes PE more likely, absence of DVT doesn't tell you anything
 - CXR – usually normal but may have atelectasis, pleural effusion, or "Hampton's hump" (wedge-shaped opacification at the distal lung fields)
 - EKG changes – most commonly sinus tachycardia +/- nonspecific ST and T wave changes, and very rarely the classic S1Q3T3 (wide S in lead I, large Q and inverted T in lead III)
 - V/Q scan – useful and accurate only in confirming low or high clinical probability
 - CT scan with contrast (AKA, CT – PE protocol, or CT pulmonary angiography) – most commonly used method to diagnose or rule out a PE, but not 100% accurate
 - Pulmonary angiogram – the gold standard but more invasive and rarely performed
2. Vasodilators used in pulmonary hypertension
 - Prostanoids – epoprostenol, treprostinil, iloprost
 - Endothelin receptor antagonists – bosentan, ambrisentan
 - Cyclic GMP phosphodiesterase inhibitors – sildenafil
 - CCB – nifedipine

Sleep Apnea (SU2 p51)

3. What is the treatment for obstructive sleep apnea (OSA)?
 - _____ if overweight or obese
 - Avoidance of _____ and other CNS depressants or sedatives
 - _____ at night – first-line but poor compliance
 - Oral appliance to protrude the mandible forward or prevent posterior tongue displacement – not as effective as CPAP
 - If excessive daytime sleepiness despite therapies → modafinil qAM
 - Surgical options:
 - Tonsillectomy & Adenoidectomy – especially in children or if hypertrophied
 - Uvulopalatopharyngoplasty (UPPP) – most common surgery in adults for OSA
 - Genioglossus advancement
 - Maxillary-mandibular advancement

Pulmonary Surgical Concerns (SU2 p51 – SU2 p52)

4. What are the components of rapid sequence intubation?

Rapid sequence intubation requires an acutely unstable patient needing an airway rapidly + rapid-acting sedative and paralytic to create optimal intubating conditions enabling rapid control of the airway.

 - Preparation
 - Pre-oxygenation
 - Pretreatment
 - _____ (to blunt ICP elevations)
 - Fentanyl (to blunt the pain response and BP elevations)
 - _____ (to decrease airway secretions and prevent bradycardia in children during intubation)
 - Paralysis with induction
 - Rapid induction agents: etomidate, ketamine, midazolam, or propofol
 - Rapid paralytics: succinylcholine, rocuronium
 - Protection and Positioning (including _____ pressure to help prevent aspiration)
 - Placement of ET tube
 - Post-intubation management – secure ET tube, CXR, set ventilator

Pediatric Pulmonary Concerns (SU2 p53 – SU2 p55)

Croup (SU2 p53)

5. What are the classic signs and symptoms of croup?

- Inflammation of larynx, trachea, and/or bronchi → _____, respiratory distress, upper airway obstruction with _____
- Symptoms are worse at night
- 75% caused by parainfluenza viruses
- 6% incidence annually in children under 6 year old
- Leading cause of hospitalization in children younger than 4 year old (esp. in fall/winter months)
- Course: 12-72 hours of mild fever and coryza → hoarseness and barking cough → peak resp distress at 24-48 hours → resolution in 1 week

6. What is the treatment for croup? What are the indications for hospitalization?

ER Treatment

- Humidified oxygen mask
- _____ q1-2 hours
- Dexamethasone 0.6mg/kg IM or PO ONCE. Prednisolone may be administered for several days because of shorter half-life.

Admission Criteria: hypoxia/cyanosis, resp distress, toxic appearance, depressed mentation, progressive stridor or stridor at rest, no improvement 5 hours after steroids

Home Treatment: cool mist humidifier (esp. at night) (commonly used, but no proven benefit)

Epiglottitis (SU2 p53)

7. What are the characteristic features of epiglottitis?

- Acute-onset fever, severe sore throat, dysphagia, drooling, and "toxic" appearance
- Progression to airway obstruction with inspiratory distress, muffled speech ("hot potato" voice), and cyanosis
- "Sniffing dog position" (arms back, trunk leaning forward, neck hyperextended, and chin thrust forward) in an attempt to maximize airway diameter
- CBC: leukocytosis with bandemia
- Lateral neck X-ray: "thumb sign" (enlarged epiglottis)
- Visualization of the swollen epiglottis in young children simply by depressing the tongue with a tongue blade
 - Anxiety and increased respiratory effort with this portion of the exam may cause cardiopulmonary arrest and should be performed cautiously and only if prepared to intubate
- Direct or indirect laryngoscopy may be needed in older children to confirm the diagnosis: cherry-red, swollen epiglottis

8. What is the treatment for epiglottitis?

- Minimize the child's anxiety during the interview
- Intubation or tracheostomy as soon as possible upon making the diagnosis
 - Nasotracheal intubation with a ET tube 0.5-1 mm smaller than what would normally be used is ideal in these patients
 - Average duration is 2-3 days
- Culture and sensitivity from blood and epiglottis surface
- Empiric IV antibiotics
 - (Oxacillin, nafcillin, cefazolin, clindamycin, or vancomycin) + (ceftriaxone or cefotaxime)
 - Duration 7-10 days

Bronchiolitis (SU2 p54)

9. What is the classic presentation of RSV bronchiolitis?

- Starts with 1-3 days of mild URI symptoms: rhinorrhea, mild cough, and mild fever +/- otitis media
- Cough with prolonged expiration, expiratory wheezing, crackles, and hyperresonance on percussion
- Possible respiratory distress with nasal flaring, tachypnea, retractions, grunting
- Possible apnea in infants (indication for mechanical ventilation)
- Complete resolution usually takes one month

10. What is the treatment for RSV bronchiolitis?

- Supportive care such as O₂ and IVF as needed.
- Albuterol nebs or _____. If good results seen with either race Epi or albuterol, then continue, otherwise stop tx. Some studies showed a benefit of albuterol or epinephrine neb in infants under 12 months
- _____ are NOT effective in bronchiolitis (NEJM 2007;357:331)
- _____ use in children is controversial, expensive, and generally is not used
- Hospitalize if:
 - Toxic appearing, poor feeding, lethargy, dehydration
 - Respiratory distress (nasal flaring, intercostal retractions, RR > 70 bpm, or cyanosis)
 - Apnea
 - Hypoxemia (< 95% on room air)
 - Parent is unable to care for the child at home

Respiratory distress syndrome of the newborn (SU2 p54)

11. How is the lecithin/sphingomyelin (L:S) ratio used in determining fetal lung maturity?

As the lungs mature at _____ weeks, the amount of lecithin produced increases while sphingomyelin remains constant.

- A L:S ratio of _____ obtained by amniocentesis indicates fetal lung maturity
- If the ratio is 1.5-1.9, 50% of these infants will develop respiratory distress syndrome (RDS)
- A ratio of _____ predicts a 75% chance of RDS development

(Samples containing blood or meconium should be discarded due to unpredictable variations. In these cases a phosphatidylglycerol (PG) measurement is most reliable.)

12. What chest X-ray characteristics distinguish neonatal respiratory distress syndrome from transient tachypnea of the newborn?

- RDS – low lung volumes, diffuse _____ appearance with _____
- TTN – increased lung volumes with flattening of the diaphragms, prominent vascular markings from the hilum (sunburst pattern), fluid streaking in interlobular fissures, +/- pleural effusions

13. What is the treatment for neonatal respiratory distress syndrome?

- _____ administration (from porcine or bovine source)
- Continuous positive airway pressure (CPAP) or intubation and mechanical ventilation
 - CPAP is preferred in larger babies (> 1500g), or if active, breathing spontaneously, and not in respiratory failure
 - Mechanical ventilation if respiratory failure

Cystic fibrosis (CF) (SU2 p55)

14. How is cystic fibrosis diagnosed?

- Sweat chloride test: sweat chloride concentration > _____ on two or more occasions
 - performed by a lab familiar with the test
 - considered the gold standard to diagnosing CF
- Genetic testing for _____ gene mutations
 - identifies about 90% of CF cases
- Nasal transepithelial chloride secretion: measures abnormalities in ion transport across the nasal epithelium

15. What are the general strategies for treating the pulmonary component of cystic fibrosis?

- β -2 agonist (albuterol, salmeterol, formoterol)
- DNase I (dornase alfa) to decrease sputum viscosity
- Hypertonic saline for chronic cough
- Physiotherapy (such as aerobic exercise) for increased mucus clearance
- Azithromycin used liberally prn when lung function decreases in order to slow the decline in lung function and treat any *Pseudomonas aeruginosa*

16. What are the general strategies for managing the GI component of cystic fibrosis?

End of Session Quiz – Pulmonary Part 3

1. HYQ: What substances should be avoided in patients with obstructive sleep apnea?
2. HYQ: Shortly after birth a child has stridor, wheezing, and shortness of breath despite medical therapies. What is likely to be causing this patient's symptoms?
3. What are the general strategies for treating the pulmonary component of cystic fibrosis?
4. What is the treatment for epiglottitis? (SU2 p53)
5. What is the treatment for croup? (SU2 p53)
6. What is the treatment for RSV bronchiolitis? (SU2 p54)
7. HYQ: Trauma patient in respiratory distress → CXR shows pleural effusion → What is the next step in the management of this patient?
8. What might cause a transudative pleural effusion? (SU2 p49)
9. What size pneumothorax requires a chest tube placement? (SU2 p49)
10. What medication is used prior to intubation in head injury patients?
11. What is the classic (but rare) EKG finding in pulmonary embolism?
12. What is the typical CXR appearance of newborn respiratory distress syndrome? (SU2 p54)

Gastrointestinal Part 1

Gastrointestinal Infections (SU2 p56 – SU2 p57, SU2 p58 – SU2 p61)

1. What infectious agent most likely corresponds to the following statement:
 - Food poisoning as a result of mayonnaise sitting out too long
 - Rice-water stools
 - Diarrhea transmitted from pet feces
 - Food poisoning resulting from reheated rice (Chinese food)
 - Most common cause of "travelers' diarrhea"
 - Diarrhea after a course of antibiotics
 - Diarrhea + recent ingestion of water from a stream
 - Mild intestinal infection that can become neurocysticercosis
 - Food poisoning from undercooked hamburger
 - Diarrhea from seafood
 - Bloody diarrhea from poultry
 - Diarrhea + pink-eye
 - Bloody diarrhea → liver abscess
 - Diarrhea in an AIDS patient
 - Dehydrated child with greenish diarrhea in winter months
2. How does the treatment for cure of hepatitis B differ than that for hepatitis C?
 - Hepatitis B Rx: interferon- α (standard or pegylated) or antiviral (lamivudine, adefovir, entecavir, or telbivudine)
 - Hepatitis C Rx: pegylated interferon + ribavirin

Oral and Esophageal Conditions (SU2 p57, SU2 p59 – SU2 p62, SU2 p63, SU2 p64)

3. What anatomical structures in the GI tract are highlighted by the following radiologic studies?
 - Barium swallow
 - Gastric emptying study
 - Small bowel follow through (SBFT)
 - Barium enema
4. What is the difference between Mallory-Weiss and Boerhaave's syndrome?
5. What surgical term matches the following description:

	Surgical connection of the stomach to the skin of the abdominal wall for feeding
	Surgical connection of the ileum to the skin of the abdominal wall
	Surgical connection of the colon to the skin of the abdominal wall
	Visualization of the peritoneal cavity using a laparoscope
	Surgical incision into the abdominal cavity

Gastrointestinal Part 1 Quiz

1. What are the different types of esophageal diverticula and their locations?

Diverticulum	Location

2. What is the treatment for the following diarrheal illness?

<i>Entamoeba histolytica</i>	
Giardia lamblia	
Salmonella	
Shigella	
Campylobacter	

3. What type of current or past Hepatitis B exposure is present in the each of the following scenarios? (SU2 p60)

	Hep BsAg	Hep BsAb	Hep BcAb
	Negative	Negative	Positive
	Positive	Negative	Positive
	Negative	Positive	Negative
	Negative	Positive	Positive

4. What infectious agent most likely corresponds to the following statement?

- Food poisoning as a result of mayonnaise sitting-out too long
- Rice-water stools
- Diarrhea transmitted from pet feces
- Food poisoning resulting from reheated rice (Chinese food)
- Most common cause of "travelers' diarrhea"
- Diarrhea after a course of antibiotics
- Diarrhea + recent ingestion of water from a stream
- Mild intestinal infection that can become neurocysticercosis
- Food poisoning from undercooked hamburger
- Diarrhea from seafood
- Bloody diarrhea from poultry
- Diarrhea + pink-eye
- Bloody diarrhea → liver abscess
- Diarrhea in an AIDS patient
- Dehydrated child with greenish diarrhea in winter months

5. What is the treatment for Hepatitis C virus infection? (SU2 p56)

6. What is the next step after H&P in the work-up of a patient complaining of dysphagia? (SU2 p59)

Gastrointestinal Part 2

Gastric Conditions (SU2 p62, SU2 p64 – SU2 p66)

1. What are the possible complications that can arise after partial gastrectomy for recurrent gastric ulcers?
 - Dumping (20%): postprandial GI discomfort including nausea, vomiting, diarrhea, cramps, diaphoresis, palpitations, and flushing
 - Alkaline reflux gastritis (2%): burning epigastric pain and nausea exacerbated by meals
 - Early satiety
 - Deficiencies of B12, iron, and/or calcium
 - Afferent and efferent loop syndromes (after Billroth II): epigastric pain and bilious vomiting due to obstruction of the duodenal limb
2. Surgical Therapies for Obesity
 - Surgical candidates: anyone with a BMI ≥ 40 , or BMI ≥ 35 with high-risk comorbid conditions (DM, OSA, obesity-related cardiomyopathy, severe joint disease)
 - Bariatric surgery is been shown to provide sustained weight loss (usually about 30-50%), reduction or cure of DM, improvement in dyslipidemia, reduction or cure of HTN, and reduced mortality (40-60% at 5-7 years) (NEJM, 357:751,2007)
 - Prior to bariatric surgery, a pt must be referred to psychiatry for evaluation of frequent overeating to cope with stress/emotional distress, a current eating disorder, or uncontrolled psychiatric disorders
 - Depression and suicide may increase in the first year after surgery. Monitor closely.
 - Surgical outcomes are better if 5-10% of body weight is lost prior to bariatric surgery (Archives of Surgery 2007;142(10):994)

Laparoscopic Gastric Banding (LGB)

 - Currently the preferred bariatric surgery
 - Silicone band is placed around the upper part of the stomach to induce feeling of satiety. OR time 1 hour. Return to work in 1 week. Band requires tightening with weight loss
 - Complications: nutritional deficiencies (iron, vitamin D), GERD
 - Reoperation required in 13% of patients for band reposition, removal, or revision

Gastric bypass (Roux-en-Y) (RYGB)

 - Currently the most common bariatric surgery in the US
 - Complications: operative mortality (0.5-1.5%), anastomotic leakage (2%), wound infection (8%), incisional hernia (15-30%). Laparoscopic RYGB can reduce complications
3. What are the possible complications of gastric bypass?
 - Operative mortality (0.5-1.5%), anastomotic leakage (2%), wound infection (8%), incisional hernia (15-30%).
 - Laparoscopic RYGB can reduce complications. Laparoscopic Gastric Banding (Lap Band) has fewer complications

End of Session Quiz – Gastrointestinal Part 2

1. HYQ: An EGD with biopsy in a 65-year-old male reveals gastric cancer. What is the next step in the management?
2. HYQ: What is the next step in the management of a patient with recurrent duodenal ulcers seen on at least two EGDs?
3. HYQ: What is the most effective treatment of a duodenal ulcer not due to ZE syndrome?
4. HYQ: What Chem 7 lab abnormality is often elevated in patients with an upper GI bleed?
5. What are Ranson's criteria in determining the prognosis of patients with acute pancreatitis? (SU2 p79)

On admission	≤48 hrs

6. What is the treatment for gastric cancer? (SU2 p66)
7. What is the most sensitive and specific lab test for the diagnosis of chronic pancreatitis? (SU2 p78)
8. What is the treatment for chronic pancreatitis? (SU2 p78)
9. You suspect your patient has gastric cancer. During the physical exam you palpate in two places for enlarged lymph nodes associated with this disease. Where will you palpate and what are the names of these enlarged nodes?
10. A female patient has a known duodenal ulcer that has been refractory to high-dose PPI therapy. What two tests may diagnose her disease?

Gastrointestinal Part 3

Intestinal Conditions (SU2 p67 – SU2 p77)

1. Irritable bowel syndrome (IBS) (SU2 p70) ROME II Diagnostic Guidelines

- At least 12 week of abdominal discomfort or pain in the preceding year a/w one of the following:
 - Relief with defecation
 - Change in _____ of stool
 - Change in _____ of stool
- Characteristic of IBS: change in stool form or frequency (>3 daily or <3 weekly), straining, urgency, or feeling of incomplete passage, bloating/distention, mucus
- Not characteristic of IBS: anorexia, _____, _____, progressively worsening pain, pain that prevents sleep

Diarrhea Predominant

- Lab work-up: serum tissue transglutaminase antibody to rule out celiac sprue +/- (CBC, Chem 7, TSH, ESR, stool leukocyte)
- Tricyclic antidepressants (desipramine) or SSRIs (if TCA's not well tolerated)
- If woman with severe disease, alosetron (Lotronex)
- Loperamide (Imodium) PRN

Constipation Predominant

- Fiber bulking agents

Inflammatory bowel disease (IBD) (SU2 p70)

2. What treatments are available for managing Crohn's disease?

- _____ agents (e.g., mesalamine, sulfasalazine) – usual initial therapy for mild disease
- _____ or mercaptopurine > methotrexate
- _____ (e.g., infliximab, adalimumab)
- _____ +/- antibiotics for acute exacerbations

Bowel obstruction (SU2 p70)

3. What are the most common causes of small bowel obstruction?

- A – _____ from previous surgeries (about 75% of cases)
- B – _____ (second most common cause)
- C – _____ (most commonly metastatic colorectal cancer)
- Other less common causes: volvulus, intussusception, Crohn's disease, gallstone ileus, bezoar, bowel wall hematoma from trauma, inflammatory stricture, congenital malformation, radiation enteritis

4. What are the classic signs and symptoms of a small bowel obstruction (SBO)? What radiographic findings help you confirm the diagnosis?

- Si/Sx: abdominal pain/tenderness; N/V; +/- recent flatus/small BM; _____ bowel sounds; (also common is history of previous abdominal surgery → adhesions)
- Dx: _____ of small bowel proximal to the obstruction seen on plain film abdominal series or CT scan of the abdomen

What is the treatment for a small bowel obstruction?

- NPO, IV fluids (usually LR), monitor electrolytes, Foley cath to monitor urine output
- NG tube to low intermittent wall suction (LIWS)
- Hospital observation with frequent reassessments +/- repeat CT scans
- Avoid pain medication if possible which may interfere with identification of disease worsening
- Surgery (laparotomy and lysis of adhesions) if:
 - No improvement in 12-24hours
 - Complete SBO
 - Suspected, impending, or ongoing strangulation

5. What is the most common benign small bowel tumor?
6. What is the most common malignant small bowel tumor?

Appendicitis (SU2 p71)

7. What radiological studies can be used to diagnose appendicitis?
 - CT scan with oral contrast – 2 hours required, but allows visualization of pathology in the entire abdomen
 - CT scan with rectal contrast +/- IV contrast – fastest and most accurate CT scan
 - CT scan without contrast – higher rate of false negatives, still better than no CT scan
 - Plain radiograph – may aid in the diagnose but does not allow you make the diagnosis, may see a radiopaque fecalith in 5% of cases
 - Ultrasound – good first study in children, not as accurate as CT scan, can identify any pelvic pathology present in women
8. What is the specific treatment for appendicitis?
 - NPO and IVF
 - Pain control: morphine or meperidine PCA
 - Antibiotic administration asap with one of the following:
 - Mild-Moderate Inpatient
 - Ampicillin/sulbactam (Unasyn) 3g IV q6 hours
 - Piperacillin/tazobactam (Zosyn) 3.375g IV q6 hours
 - Ticarcillin/clavulanate (Timentin) 3.1g IV q6 hours
 - Levofloxacin 750mg IV q24 hours + metronidazole 500mg IV q6 hours
 - Ciprofloxacin 400mg IV q12 hours + metronidazole 500mg IV q 6hours
 - Severe ICU
 - Ampicillin 2g IV q6 hours + levofloxacin 750mg IV q24 hours + Flagyl 500mg IV q8 hours
 - Imipenem/cilastatin (Primaxin) 500mg IV q6 hours
 - Meropenem 1g IV q8 hours
 - If presentation within 24-72 hours of symptom onset → Surgical removal of appendix via laparoscopy or open appendectomy
 - If symptoms present for more than 5 days and pain specifically in RLQ → antibiotics, IVF, bowel rest (due to increased mortality associated with immediate surgery) → then interval appendectomy about 8 weeks later
 - If abscess on CT scan → percutaneous drainage (Interventional Radiology)

Ileus (SU2 p72)

9. What is the classic presentation of gallstone ileus?
 - Gallstone ileus is impaction of a gallstone in the ileum after passage through a biliary-enteric fistula.
 - Classically presents as an episodic subacute obstruction in an elderly female → vague, recurrent abdominal pain and vomiting that recurs as the stone repeatedly lodges and dislodges
 - Average time from symptom onset to hospitalization – 5 days

Volvulus (SU2 p72)

10. What is the treatment for sigmoid volvulus?
 - Sigmoidoscopy or colonoscopy for decompression
 - Volvulus usually 25cm from the anal verge
 - Contraindicated if signs of gangrene due to perforation risk
 - If gangrenous or scope is unsuccessful → laparoscopic resection of the affected colon and colostomy
 - Once corrected, the recurrence in 40-60% of patients can be prevented with one of the following:
 - Mesosigmoidopexy
 - Resection with primary anastomosis
 - Hartmann's procedure (proximal colostomy + stapling but not removal of the distal segment)

End of Session Quiz – Gastrointestinal Part 3

1. HYQ: What is the next step in the management of a patient that comes to the ER with severe abdominal pain and AXR shows free air in the abdomen?
2. HYQ: A recent Cuban immigrant with symptoms of malabsorption is found to also have megaloblastic anemia. What is the disease and treatment? (SU2 p68)
3. Elderly patient presents to the ER with vomiting and abdominal pain and distention. Abdominal x-ray reveals two distinct but sequential portions of bowel in the sigmoid colon that are distended with air. What is the treatment? (SU2 p72)
4. What is the treatment for Crohn's disease? (SU2 p71)
5. What is the classic characteristic of acute mesenteric ischemia? (SU2 p70)
6. Which characteristics are and which are not associated with IBS?
7. What tumors can cause a secretory diarrhea? (SU2 p69)
8. What is the most likely cause of malabsorption in a patient with a (+) Sudan stain in the stool sample and a normal D-xylose test? (SU2 p68)
9. What is the treatment for Whipple disease? (SU2 p68)
10. What serum lab findings might help you distinguish Crohn's from UC? (SU2 p71)

Gastrointestinal Part 4

Diverticulitis (SU2 p74)

1. When is inpatient admission for diverticulitis treatment indicated? What are the steps in the inpatient management of diverticulitis?
 - The following patients need to be hospitalized for treatment of acute diverticulitis: elderly, immunocompromised, significant comorbidities, high fever, and significant leukocytosis, unable to tolerate PO intake. Otherwise, it can be treated on an outpatient basis.
 - IV Fluids
 - Broad spectrum empiric antibiotics (same as appendicitis antibiotics above)
 - If _____ → emergency exploration through midline incision
2. A 65-year-old female that presented to the ER with severe abdominal pain is found to have leukocytosis and an abscess in the region of the sigmoid colon. What is the most likely predisposing lesion, and what is the next step in management?
 - Diverticulosis → _____ → _____
 - CT-guided or US-guided _____
 - IV antibiotics

Carcinoid tumor (SU2 p75)

3. What are the classic features of carcinoid syndrome?
B FDR: Bronchospasm (10-20%), Flushing (85%), Diarrhea (80%), Right-sided valvular disease/murmurs
4. What is the treatment for carcinoid syndrome?
 - _____ analog such as octreotide
 - Other drugs that can be used for symptom relief:
 - Cyproheptadine for diarrhea and/or anorexia
 - Albuterol and/or theophylline for asthma symptoms
 - Codeine and/or cholestyramine for diarrhea
 - If symptoms are refractory to octreotide → _____ combined with octreotide
 - Surgical resection in certain circumstances of isolated tumors
 - Valvular surgery for symptomatic carcinoid heart disease

Colorectal cancer (SU2 p75)

5. What are the current colon cancer screening recommendations for normal risk patients?
For the average risk patient, the following screening should start at age 50:
 - Fecal occult blood test _____ with stool guaiac (samples from three consecutive stools is ideal)
 - Colonoscopy q _____ (or flex sig and double-contrast barium enema q _____)
 - (CT Colonography is not currently used for screening because it does not have adequate sensitivity and specificity.)Screening should stop when a patient's life expectancy is less than 5 years (or at age 75, whichever comes first).
6. A 20-year-old patient with a strong family history of colon cancer is found to have an autosomal dominant mutation in the APC gene. What prophylactic measures should this patient take to prevent future morbidity and mortality?
Patients with familial adenomatous polyposis (FAP) have a 95-100% chance of developing colorectal cancer. Prophylaxis in these patients includes:
 - Flexible sigmoidoscopy or colonoscopy q1 year starting at age 10 → when multiple adenomas are identified, then colectomy is indicated (if no adenomas are identified, then continue annual flex sig through age 40 then q3-5 year.)
 - Colectomy when adenomas identified (abdominal colectomy, mucosal proctectomy, and ileoanal anastomosis)
 - Upper GI endoscopy at the time of colectomy (or early 30s) then q3-5 year if no lesions are seen

7. What are the current recommendations for follow-up colonoscopy for patients with history of colon polyps?

American College of Gastroenterology Post-Polypectomy Surveillance Guidelines

<u>Findings</u>	<u>Repeat Colonoscopy in:</u>
- 1-2 tubular adenomas (< 1 cm)	→
- 2 or more tubular adenomas	→
- Tubular adenomas ≥ 1 cm	→
- Villous adenoma or high-grade dysplasia	→
- FH of colon cancer	→
- > 2cm sessile polyp	→ 3-6 months
- poor prep, cecum not seen	→ < 3 year
- more than 10 adenomas	→ < 3 year
• The above recommendations assume adequate bowel prep/visualization, visualization of the cecum, and removal of all polyps.	
• Some physicians follow stricter screening guidelines such as repeat colonoscopy q6-12 months until colon is without tubular adenomas or villous adenomas, then repeat q3-5year. This is supported by a study that showed recurrence of advanced adenomas following polypectomy was 6.4months (Gastroenterology 2006;130:1872).	

GI bleeding (SU2 p77)

8. What are the next steps in the management of a patient that presents to the ER with massive lower GI bleeding?

Assess and Stabilize

- Hx and PE
- Continuous monitor of vital signs
- Obtain IV access with 2 large bore IV's (18-gauge in both arms) or central line
- Blood volume resuscitation with NS or LR as needed
- Type and cross 2U PRBC
- Lab: CBC, coags, (guaiac stool if necessary to confirm blood)

Treat and Determine cause

- NGT lavage to rule out massive upper GI bleed
- Surgery consult for admission (colonoscopy, +/- surgical intervention)
- If colonoscopy is nondiagnostic and not feasible (e.g., too much active bleeding may obscure visualization) and bleeding persists → radionucleotide scan and/or angiogram

Biliary Disorders (SU2 p80 – SU2 p81)

9. What is a HIDA scan (AKA cholescintigraphy)?

- Technetium labeled hepatic iminodiacetic acid (HIDA) given IV → taken up by hepatocytes → excreted into bile → visualization of gallbladder
- Inability to visualize the gallbladder with this test indicates cystic duct obstruction usually from acute cholecystitis or an obstructing stone

End of Session Quiz – Gastrointestinal Part 4

1. HYQ: What is the next step in the management of a patient younger than 50 with minimal bright red blood per rectum (e.g., only seen on the toilet paper after wiping)?
2. HYQ: What is the most likely cause of acute pain and swelling of the midline sacrococcygeal skin and subcutaneous tissues?
3. What is the most likely cause of recurrent LLQ abdominal pain that improves after defecation?
4. What type of patient is at high risk of acalculous cholecystitis? (SU2 p80)
5. What is Charcot's triad and Reynold's pentad? (SU2 p81)
6. How does the interventional component of treatment of cholecystitis differ from that of cholangitis? (SU2 p81)
 - Cholecystitis→
 - Cholangitis→
7. A 60-year-old male undergoes colonoscopy and is found to have 3 small tubular adenomas that are completely removed. When should he undergo his next colonoscopy?
8. A 40-year-old male tells you that his father had colon cancer at age 55. When should this man's first colonoscopy be scheduled?
9. What antibiotic combinations are used in the treatment of diverticulitis as an outpatient? (SU2 p74)
10. How are anal fissures managed? (SU2 p75)
11. How is volume status assessed in a patient with a GI bleed? (SU2 p77)

Gastrointestinal Part 5

Hepatic Disorders (SU2 p81 – SU2 p85)

1. What is the treatment for hepatic encephalopathy?
 - Identify and correct the underlying precipitating factors (hypovolemia, GI bleeding, hypoxia, infection)
 - _____ titrated to 3 soft bowel movements a day
 - _____ or rifaximin antibiotics to reduce toxins formed by gut bacteria
 - _____ to decrease nitrogen/ammonia related toxins
2. What are the signs and symptoms of Budd-Chiari syndrome?

Budd-Chiari syndrome is the thrombosis and occlusion of the hepatic vein or hepatic stretch of the inferior vena cava and presents with the following symptoms:

 - _____ (84%)
 - _____ (76%)
 - Jaundice
 - Acute presentation: acute RUQ pain and hepatomegaly, and rapid development of jaundice and ascites
 - Subacute or chronic presentation: gradual development of ascites, LE edema, cirrhosis, and portal hypertension over a few months
 - eventual development of liver failure and hepatic encephalopathy
3. What criteria compose the Child's classification of operative mortality in patients with liver disease?

A BEAN:
4. What is the treatment for SBP (Spontaneous Bacterial Peritonitis)?
 - _____ (2g IV q8 hours), ceftriaxone or other third generation cephalosporin for at least 5 days to cover for gut bacteria (*E. coli*, *Klebsiella*, and *Enterococcus*) and *Staph.* and *Strep.*
 - _____ dosed IV (1.5g/kg at diagnosis then 1g/kg on day 3) maintains plasma volume → preserves renal function → reduces renal impairment and mortality

Hepatic parenchymal and biliary diseases (SU2 p83)

5. What physical exam and lab findings would lead to suspect primary biliary cirrhosis as a diagnosis?
 - Usually women (95% of patients) between ages 30 – 65
 - _____ are the most common presenting symptoms
 - Excessive daytime somnolence
 - Pruritus often starts during pregnancy but is not relieved postpartum
 - Patients are often initially referred to a dermatologist for pruritus and excoriations are common
 - Skin changes: hyperpigmentation due to melanin deposition (25-50%), xerosis (70%), dermatographism (57%)
 - Xanthelasma (10%) (cholesterol-filled plaques on the medial aspects of the eyelids bilaterally) and/or xanthoma (5%)
 - Hepatomegaly that progressively worsens +/- splenomegaly
 - Malabsorption and steatorrhea from less bile acid secretion
 - Cirrhosis, jaundice, ascites, edema, portal hypertension occur in late stage disease
 - Labs: elevated alk phos and GGT, elevated serum direct and indirect bilirubin (but not in early disease), elevated cholesterol
 - Elevated serum _____ (> 95% of patients) – the hallmark finding of PBC
 - Elevated _____ (70%)
 - Associated conditions: other autoimmune disorders (e.g., thyroiditis/hypothyroid (20%), sicca syndrome, scleroderma, Sjogren's, arthritis, Raynaud's), osteoporosis, osteomalacia

6. What is the treatment for primary biliary cirrhosis?
- Ursodeoxycholic acid (UDCA) – delays disease progression and enhances survival
 - The only approved therapy for PBC
 - If UDCA not sufficient, may add colchicine +/- methotrexate
 - If pruritis, cholestyramine
 - Prevention of metabolic bone disease:
 - Calcium 1,500 mg/d + at least 800 IU of vitamin D daily
 - Supplement vitamins A and D as needed based on annual serum levels of these vitamins
 - Evaluation with bone DXA scan at the L-spine and hip
 - If low bone density, bisphosphonates
 - If esophageal varices, β -blocker +/- band ligation +/- surgical intervention (splenorenal shunt or TIPS)
 - If iron deficiency anemia, oral iron replacement
 - If fatigue, modafinil (not well studied)
 - Dietary changes:
 - If steatorrhea, reduce dietary fat
 - If weight loss, supplement medium-chain triglycerides which do not need bile for absorption
 - If pancreatic insufficiency, pancreatic enzyme replacement
 - Treat hypothyroidism as needed
 - If painful or debilitating xanthomas on palms or soles, large-volume plasmapheresis q1-2 weeks to normalize serum cholesterol
 - Definitive treatment is liver transplantation
7. What are some of the possible etiologies of secondary sclerosing cholangitis?
- Intraductal biliary stones
 - Surgical trauma or blunt abdominal trauma to the biliary tree
 - Drugs (IV chemotherapy)
 - Recurrent pancreatitis
 - Autoimmune pancreatitis
 - AIDS cholangiopathy
8. Hepatic Adenoma
- Most often in females 20-44 (OCP years)
 - Risk Factors: OCP use, anabolic steroids, (glycogen storage disease types I and III)
 - Sx: RUQ pain, but usually there are no symptoms because it is often an incidental finding on imaging
 - Malignant transformation in 10% of patients
 - Rx: DC the OCP, serial imaging and AFP, +/- resection (esp. if > 5cm)

Pediatric Disorders (SU2 p85 – SU2 p88)

9. Neonatal Jaundice Causes (high-yield!):

- Physiologic jaundice (50% of newborns)- starts day 2-3, peaks at < 10 mg/dL on day 3-5
- Exaggerated physiologic jaundice (AKA breast feeding jaundice)- occurs in 1st week of life, peaks at 12-15mg/dL, due to dehydration → make sure baby has more than 10 feeds/day
- Breast milk jaundice- starts days 4-14 (usually after 1st week) due to substances in breast milk. May continue for weeks to months while breastfeeding. Improvement with the substitution of formula for 48-72 hours is diagnostic.
- Immune Related
 - ABO incompatibility
 - Rh (or other antigen) incompatibility (erythroblastosis fetalis)
- Trauma, cephalohematoma, bruising
- Infection/sepsis (look for other signs of infection such as fever, lethargy, and poor feeding)
- Polycythemia
- Hereditary disease
 - G6PD deficiency (more common in black, African, Asian, Mediterranean, and Middle-Eastern males)
 - Hereditary spherocytosis
 - Dubin-Johnson (direct/conjugated bili elevation)
 - Rotor's (direct/conjugated bili elevation)
 - Byler's (direct/conjugated bili elevation)
- Biliary atresia- May present after 2 weeks of age with jaundice and pale stools. Direct bili is more than 20% of the total bili which is usually elevated to 6-12mg/dL. Early referral to Pedi GI for diagnosis (US + biliary nuclear imaging +/- biopsy) is important since surgical repair prior to 2 months of age is essential in preventing biliary cirrhosis.

10. What antibiotic is contraindicated in neonates with hyperbilirubinemia and why?

11. What characteristics might help you identify newborn jaundice as pathological?

- any jaundice in 1st 24 hours
- rise in total bili by more than 0.5mg/dL/hr
- rise in total bili more than 5mg/dL/day
- direct (conjugated) hyperbili greater than 20% of the total bili or > 1.5mg/dL
- total bili higher than 13mg/dL in term neonates
- jaundice appearing after 2-3 weeks of age

Failure to thrive (SU2 p88)

12. What are the criteria for failure to thrive in a child younger than 2 years of age?

- Weight < 3rd or 5th percentile for gestation corrected age on > 1 occasion
(make sure to use special growth chart for Down syndrome and Turner syndrome patients)
- Weight < 80% of ideal weight for age
- Weight crosses 2 major percentiles downward on a standardized growth chart over time
- Weight for length ratio < 10th percentile
- Rate of daily weight gain less than that expected for age

Gastrointestinal Part 5 Quiz

1. What are the names of the following signs, and with what diseases are they associated?

SIGN	DISEASE	DESCRIPTION
		Deep palpation of RUQ → arrest of inspiration due to pain
		Charcot's triad (fever, jaundice, RUQ pain), hypotension, altered mental status
		RLQ pain on passive extension of the hip
		RLQ pain on passive internal rotation of the flexed hip
		LUQ pain and referred left shoulder pain
		Ecchymosis of the skin overlying the flank
		Ecchymosis of the skin overlying the periumbilical area

2. What is the treatment for hepatic encephalopathy? (SU2 p83)
3. What are the symptoms of Budd-Chiari syndrome?
4. What is the most widely used screening test for hemochromatosis?
5. What is the treatment for hemochromatosis? (SU2 p83)
6. What distinguishes primary biliary cirrhosis from primary sclerosing cholangitis? (SU2 p84)
7. What is the treatment for primary biliary cirrhosis? (SU2 p84)
8. What is the tumor marker for hepatocellular carcinoma? For colon cancer? For gastric cancer? For pancreatic cancer?
9. What is the most common type of TE fistula? (SU2 p86)
10. What is the classic presenting scenario for necrotizing enterocolitis? (SU2 p86)

Epidemiology & Ethics

Biostatistics (SU2 p296 – SU2 p300)

1. Rates of disease (SU2 p296)

RATE	DEFINITION
Birth rate	Live births/1000 population
Fertility rate	Live births/1000 population of women aged 15-45 years
Death rate	Deaths/1000 population
Neonatal mortality rate	Neonatal deaths (first 28 days of life)/1000 live births
Perinatal mortality rate	Neonatal deaths + stillbirths/1000 total births
Infant mortality rate	Deaths (from 0-1 year old)/ 1000 live births
Maternal mortality rate	Maternal pregnancy-related deaths (deaths while pregnant or in the first 42 days after delivery) / 100,000 live births

2. Attributable risk (AR)

- AR = incidence of disease in the exposed group – incidence of disease in the unexposed group
- Example: In a population of smokers, 5% have pneumonia. In a population of nonsmokers, only 1% has pneumonia. The attributable risk of smoking to pneumonia is 4%

3. Number Needed to Treat (NNT)

- $NNT = 1/\text{absolute risk reduction}$
- Number of patients you would need to treat in order to save/affect one life
- Important number to help determine if a drug should be used or is cost effective
- Example: If out of 10,000 pts that took t-PA during a STEMI, 100 were saved by the t-PA, then the NNT is 100. In other words, you would need to treat 100 pts in order to save/affect 1 life

4. Confidence Interval

- A range of values in which the examiner can be (90%, 95%, 99%) confident that the value obtained from the study truly reflects reality
- The confidence interval range = $\text{mean} \pm (Z \times \text{SEM})$
- If a 90% confidence interval is desired, then use $Z = 1.645$
- If a 95% confidence interval is desired, then use $Z = 1.96$
- If a 99% confidence interval is desired, then use $Z = 2.57$
- As the % confidence interval increases, so does the range on either side of the mean
- If the confidence interval range for odds ratio or relative risk crosses one, this indicates there may be no association between the risk and the disease.
- If the confidence interval range for a study of 2 treatment groups crosses zero, this indicates there may be no actual difference between two treatments.

Ethics (SU2 p300 – SU2 p302)

5. HYQ: The mother of an adolescent boy wants you to ask her son (your patient) if he is gay. How do you proceed?
6. HYQ: A teenage boy wants to ask you some questions about masturbation. What should this discussion entail?
7. HYQ: The family of a malnourished elderly woman with multiple chronic medical problems, who resides in a local nursing home, asks you for advice on options to feed her. What ethical factors need to be considered?

Medical Malpractice

8. What are the 4 elements of a malpractice claim?
 - _____ : A legal obligation to conform to a reasonable standard of care
 - _____ : Failure to conform to the standard of care
 - _____ : Injury or harm to the plaintiff
 - _____ : The breach of duty was the legal cause of the injury or harm
9. HYQ: What are the 2 ways that the standard of care can be established in a malpractice case?
10. A surgical sponge is left behind in patient's abdomen following a laparotomy. The hospital, surgeon, the scrub nurse and the circulating nurses are all named in the subsequent malpractice suit. The surgeon claims that the scrub nurse is responsible for making sure that the sponge count was correct. Does this free him from legal liability?

Epidemiology & Ethics Quiz

1. HYQ: Assuming a normal bell shaped distribution, what percentage of the study population falls within 1 standard deviation, 2 standard deviations, and 3 standard deviations from the mean?
2. What is the equation for odds ratio? What is the equation for relative risk?
3. HYQ: When is the odds ratio a good approximation of relative risk? (SU2 p298)
4. What does it mean when the relative risk is equal to one?
5. What should you do in the case of a child's parents refusing a clearly life-saving treatment for their child in an emergency situation?
6. Under what circumstances are you allowed to break confidentiality with a patient? (SU2 p300)
7. A cancer patient is emergently intubated in the ER after a motor vehicle accident. The patient's family brings you a DNR signed by the patient stating that she does not wish to be intubated. What do you do next?
8. A patient tells you she does not want to know the result of her recent lung biopsy, but the family is begging you to tell them. Who do you tell the result to?
9. What equations represent sensitivity, specificity, positive and negative predictive value using antibodies to X to detect disease X?

		<u>Autoimmune Disease X</u>	
		Present	Absent
<u>Antibody to X</u>	Present	800	200
	Absent	100	1400

Genitourinary Part 1

Normal Renal Function (SU2 p89) and Diuretics (SU2 p90)

1. What type of diuretic is the following drug:

triamterene	acetazolamide
hydrochlorothiazide	bumetanide
spironolactone	chlorothiazide
ethacrynic acid	mannitol
metolazone	chlorthalidone
furosemide	amiloride
toremide	

2. What diuretic or class of diuretic would be most useful in the following situation:
 - Acute pulmonary edema
 - Idiopathic hypercalciuria (→ calcium stones)
 - Glaucoma
 - Mild to moderate CHF with expanded ECV
 - In conjunction with loop or thiazide diuretics to retain K⁺
 - Edema a/w nephrotic syndrome
 - Increased intracranial pressure
 - Mild to moderate hypertension
 - Hypercalcemia
 - Altitude sickness
 - Hyperaldosteronism

Disorders of the Kidney (SU2 p89 – 93)

3. What is the general treatment for calcium nephrolithiasis?

What to Expect

- If ≤ 4mm diameter, will pass spontaneously (average 8-12 days)
- 5-7mm stones are 60% likely to pass. 8-9mm stones are about 50% likely to pass
- If ≥ 10mm diameter, unlikely to pass spontaneously (<25% chance)
- If in proximal ureter → about 50% likely to pass. If in UVJ → about 80% likely to pass

Expectant Management

- Strain urine with strainer → bring any stones to lab for analysis
- Drink 3L of fluid daily (also drink during night)
- Flomax (tamsulosin) 0.4mg qd x 4 weeks facilitates stone passage (relaxes smooth muscle)
- Nifedipine 30mg qd x 4 weeks may be of some benefit
- Pain medications: NSAIDS (diclofenac 50mg PO bid-tid prn pain), Vicodin 7.5/500 1-2 q4-6 hours prn breakthrough pain (not to exceed 8/24 hours)
- Cipro ER 1000mg qd x14days if signs of UTI without pyelonephritis or urosepsis
- Repeat CT stone protocol in 4 weeks to insure all fragments have passed → F/U in clinic after CT

Hospitalization by urology required if:

- Clinical complete obstruction (regardless of hydronephrosis on CT scan)
- Unable to tolerate PO intake despite nausea meds
- Intractable pain not able to be relieved with PO meds
- Acutely elevated BUN or Creatinine, or anuria
- Fever, pyelonephritis, or urosepsis
- Solitary kidney

* Admit for IVF, IV pain meds (Toradol), IV antibiotics (typically Zosyn until C&S returns), and surgical intervention (usually ureteroscopy with lithotripsy and possible stent)

Surgical Treatment

- 10-20% of all kidney stones require surgical removal
- Required if: unable to pass stone after 4-6 weeks, complete urinary obstruction, persistent infection, impairment of renal function
- Extracorporeal Shock Wave Lithotripsy (ESWL) for stones in renal pelvis or upper ureter
- Ureter stones → Ureteroscopy with possible lithotripsy and possible stent placement
- Staghorn Calculi → percutaneous nephrostolithotomy (PNL)

4. Hematuria Evaluation:

- Thorough physical exam, UA, CBC, Chem 8, PSA (men over 40)
 - UA in women with hematuria should be via straight cath, or after perineum is cleansed and a tampon is placed in the vagina
- CT scan abdomen/pelvis stone protocol (no contrast) to rule out renal stone
- If CT stone protocol reveals no stones, then CT abdomen/pelvis with contrast and post-CT plain film KUB (equivalent to IVP) to view any radiopaque stones
- If low suspicion of disease, consider treatment for UTI and F/U UA in 3-5 days
- If smoker, over age 50, cyclophosphamide use, FH of urinary tract cancer, or suspicion for cancer → send urine for cytology and perform cystoscopy
- If work-up reveals no pathology, consider IgA nephropathy or thin basement membrane disease. Routinely (q6m) repeat UA and urine cytology, and consider F/U with renal sonogram and cystoscopy in 1 year

Glomerular Diseases (SU2 p93 – SU2 p96)

5. Which glomerular disease would you suspect most in a patient with the following findings?

- Most common nephrotic syndrome in children
- IF: granular pattern of immune complex deposition; LM: hypercellular glomeruli
- IF: linear pattern of immune complex deposition
- Kimmelstiel-Wilson lesions (nodular glomerulosclerosis)
- Most common nephrotic syndrome in adults
- EM: loss of epithelial foot processes

- Nephrotic syndrome a/w hepatitis B
- Nephrotic syndrome a/w HIV
- Anti-GBM antibodies, hematuria, hemoptysis
- EM: subendothelial humps and tram-track appearance
- Nephritis, deafness, cataracts
- LM: crescent formation in the glomeruli
- LM: segmental sclerosis and hyalinosis

- Purpura on back of arms and legs, abdominal pain, IgA nephropathy
- Apple-green birefringence with Congo-red stain under polarized light
- Positive ANCA
- Anti-dsDNA antibodies
- EM: spike and dome pattern of the basement membrane

6. In which diseases are the following urinary casts commonly seen?

- Hyaline casts
- Granular casts
- Red cell casts
- White cell casts
- Epithelial cell casts

End of Session Quiz – Genitourinary Part 1

1. HYQ: A 60 year-old male smoker is found to have a varicocele that does not empty when the patient is recumbent. What should you be suspicious of in this patient?
2. HYQ: What are the dietary recommendations in the treatment of nephrolithiasis?
3. HYQ: A young black male presents with painless hematuria. What should you suspect?
4. HYQ: What is the treatment for uric acid renal stones?
5. HYQ: What is the most common cause of nephrotic syndrome in African American males?
6. What medications are used in the treatment of Wegener's granulomatosis? (SU2 p94)
7. What is the classic presentation of poststreptococcal glomerulonephritis? (SU2 p94)
8. What is the most common cause of morbidity and mortality in patients with SLE? (SU2 p94)
9. Fever + rash + elevated creatinine + eosinophilia → What is the diagnosis?
10. What is the biggest risk factor for renal cell carcinoma? (SU2 p93)
11. What are 5 etiologies of temporary hematuria? (SU2 p92)
12. What are 4 potassium sparing diuretics? (SU2 p90)
13. What size calcium renal stone has a 50% likelihood of passing without surgical intervention?

Genitourinary Part 2

Renal Failure (SU2 p96 – SU2 p97)

1. Treatment for Chronic Kidney Disease:

- Stop smoking!
- BP aggressive control to goal < 130/80 (JNC-7). Most need ≥ 3 medications
 - ACE-I or ARB
 - β -blockers – to reduce CAD risk
 - Diuretic
 - Dihydropyridine CCB
 - Clonidine patch
 - Minoxidil in refractory cases
- DM aggressive control to HgbA1C goal of < 6.5% with insulin and oral agents (usually not metformin) (rosiglitazone OK)
- Lipid aggressive control with statins to goal LDL < 100 (but < 70 is better)
 - Statins have been shown to reduce sepsis risk by 63% in patients on HD (JAMA 2007;297:1455)
- Anemia aggressive control to goal Hgb 11-12
 - For every decrease in Hgb of 0.5 g/dL, increase risk of LVH by 32% (\rightarrow increase CAD and CVD risk)
 - Usually requires iron and erythropoietin
- Vitamin D replacement
- Phosphate binders (Phos-Lo)
- Daily ASA 81mg to reduce endothelial injury CAD risk

Acid-Base Disorders (SU2 p97 – SU2 p99)

Normal Gas Values	Normal Ranges (use for the question below)
pH 7.35 – 7.45	pH 7.35-7.45
pCO ₂ 35 – 45	PCO ₂ 35-45 mmHg
pO ₂ >90 (45 x 2 = 90)	PO ₂ 75-105 mmHg
HCO ₃ ⁻ 22 (45/2 = 22.5)	HCO ₃ ⁻ 22-28 mEq/L

2. Determine what is wrong in patients with the following lab values:

pH	HCO ₃ ⁻	pCO ₂	Type of Acid-Base Disorder
7.40	23	40	
7.50	35	42	
7.33	13	28	
7.42	32	64	
7.24	18	40	
7.24	24	54	
7.50	22	22	
7.58	36	30	
7.47	14	22	
7.46	35	53	
7.39	12	22	
7.34	31	62	
7.10	15	50	

3. What is the differential diagnosis for metabolic acidosis with a normal anion gap? How can serum potassium be useful in narrowing the differential diagnosis?

- Low serum potassium: diuretics, renal tubular acidosis types I and II, diarrhea, Fanconi's syndrome
- High serum potassium: Addison's disease, renal tubular acidosis type IV, potassium sparing diuretics, hyperalimentation

4. What is the differential diagnosis for elevated anion gap metabolic acidosis with high serum osmolality?

Electrolyte Disorders (SU2 p99 – SU2 p102)

Hyponatremia (SU2 p100)

5. What is pseudohyponatremia? How is this different from hyponatremia from hyperosmolality?
- When the serum volume is expanded by a substance such as lipid or protein (e.g., multiple myeloma), the amount of sodium per volume of serum may decrease even though the amount of sodium per unit of water in serum is appropriate. This is referred to as pseudohyponatremia.
 - This is different than hyponatremia due to hyperosmolality from elevated glucose or mannitol administration. In the case of hyperosmolality, the increase in serum osmols pulls water out of cells thereby diluting serum sodium. Here the plasma sodium level is expected to fall by 1.6 mEq/L for every increase of 100 mg/dL of plasma glucose (which increases to 2.4 mEq/L per 100 after glucose levels exceed 400 mg/dL). Use this calculation to determine how much you can expect the sodium to rise as the plasma glucose begins to fall with treatment and water is consequently shifted back into cells.
6. What volume status would you expect to find in a patient with hyponatremia due to the following causes?
- Thiazide diuretics
 - SIADH
 - Hepatic cirrhosis
 - Addison's disease
 - Hypothyroidism
 - Renal failure
 - Psychogenic polydipsia
7. What urine and serum osmolality would you expect to see with the following causes of euvolemic hyponatremia?
- | Cause | Urine sodium | Urine osmolality |
|------------------------|--------------|------------------|
| SIADH | | |
| Psychogenic polydipsia | | |
| Thiazides | | |
| Alcoholism | | |
| Hypothyroidism | | |
8. What is the differential diagnosis for hypovolemic hyponatremia based on urine sodium levels?
- Urine sodium < 10 mEq/L: Extrarenal losses – GI losses (vomiting, diarrhea, NG tube), fluid sequestration (peritonitis, pancreatitis), insensible loss (sweating, extensive burns)
 - Urine sodium > 20mEq/L: Renal losses – diuretics (thiazides), salt-losing renal disease, partial urinary tract obstruction, adrenal insufficiency (inadequate mineralocorticoid, Addison's)
9. What is the differential diagnosis for hypervolemic hyponatremia based on urine sodium levels?

10. What condition may result from the rapid correction of hyponatremia? What are the manifestations?

Central pontine myelinolysis (osmotic demyelination)

- Occurs when sodium is corrected by more than 12-20 mEq/L over 24 hours or is overcorrected to above 140
- Symptoms are irreversible and typically delayed 2-6 days after the correction of hyponatremia
- Dysarthria, dysphagia
- Paraparesis or quadriparesis
- Behavioral disturbances
- Lethargy and coma
- Head CT or MRI 4 weeks after the event reveals areas of demyelination

Syndrome of inappropriate ADH secretion (SIADH) (SU2 p101)

11. What are the different etiologies of the syndrome of inappropriate antidiuretic hormone (SIADH)?

- CNS disease: head trauma, brain tumor, stroke, CNS infection, pituitary surgery
- Pulmonary disease: pneumonia, tumor (small cell)
- Drugs: NSAIDs, antidepressants, antipsychotics, antineoplastic agents, carbamazepine, ecstasy, vasopressin, DDAVP
- Other: HIV/AIDS, major abdominal or thoracic surgery

Hyperkalemia (SU2 p101)

12. K⁺ shift out of cells → Hyperkalemia

- Low insulin
- β -blockers
- Acidosis
- Digoxin
- Cell lysis (i.e., leukemia)

K⁺ shift into cells → Hypokalemia

- Insulin
- β -agonists
- Alkalosis
- Cell creation/proliferation

13. What is the emergency treatment for hyperkalemia?

- Stat EKG to identify any EKG changes such as peaked T waves
- Repeat K⁺ level to insure not lab error/lysis
- D50 1 amp IV followed immediately by 10 units R insulin IV (drives K⁺ into cells → 4-6 hour effect)
- Ca-gluconate 1-2 amps (or CaCl 1 amp) to protect myocardium
- NaHCO₃ 50mEq IV over 5 min (drives K⁺ into cells in exchange for H⁺)
- Albuterol nebulizer (page RT stat if needed) (drives K⁺ into cells)
- Kayexalate 30g PO/PR (exchanges Na⁺ for K⁺ in the gut → excretion of K⁺ → 24 hour effect)
- repeat K⁺ in 30 min
- Consider Lasix 40-80mg IV to increase K⁺ wasting in urine. May also use dialysis.
- Replace magnesium if it is less than 2.0
- Determine cause of hyperkalemia and treat

End of Session Quiz – Genitourinary Part 2

1. HYQ: hyponatremia + low serum osmolality + high urine osmolality
2. HYQ: What is the next step in the management of a patient with peaked T waves on EKG due hyperkalemia?
3. HYQ: What is the most common cause of death in dialysis patients?
4. What are the distinguishing characteristics of each type of renal tubular acidosis (RTA)?

Type – Defect	Urine pH	Serum K ⁺	Serum bicarb
Type I – Distal			
Type II – Proximal			
Type IV – Hypoaldosterone			

5. What is the consequence of correcting hypernatremia too rapidly? How rapidly can it safely be corrected? (SU2 p100)
6. What is the consequence of correcting hyponatremia too rapidly? How rapidly can it safely be corrected? (SU2 p100)
7. What medications can be used to rapidly correct hyperkalemia by shifting potassium into cells?
8. What are the causes of euvolemic hyponatremia?
9. What medications are known for causing hyperkalemia? Hypokalemia? (SU2 p101)
10. What are the causes of a normal anion gap metabolic acidosis? (SU2 p98)
11. What medications are necessary in patients with end stage renal disease? (SU2 p96)
12. What is the treatment for nephrogenic diabetes insipidus? (SU2 p100)

Genitourinary Part 3

Male Reproduction (SU2 p103 – SU2 p105)

Benign prostatic hyperplasia (BPH) (SU2 p103)

1. How is benign prostatic hyperplasia (BPH) diagnosed?

- Clinical diagnosis based on symptomatic scoring system
- Rule out other pathologies that may cause similar symptoms using history and the following tests:
 - Digital rectal exam – to detect malignancy
 - Urinalysis – to detect hematuria indicating infection, calculi, or prostatitis
 - Serum creatinine – to detect possible renal or prerenal disease
- Other useful but optional tests: serum PSA, postvoid residual, maximum urinary flow rate

2. What is the treatment for benign prostatic hyperplasia (BPH)?

Alternative Medicine

- Isoflavones as found in soy decrease the growth of hyperplastic prostate tissue in histoculture. Trinovin at 40-80mg/d may help relieve symptoms.
- Saw palmetto is as effective as finasteride (Proscar)(Urology 2001;58:71-6), has fewer SE, and decreases prostate size without changing PSA values (JAMA 1998;280:1604-9).

Medical Intervention

- Nonselective α -blockers
 - Doxazosin (Cardura), prazosin (Minipress), and terazosin (Hytrin)
 - Decrease prostate smooth muscle tone → immediate improvement in urine flow
 - SE: dizziness, postural hypotension, fatigue, asthenia. To reduce SE, dose qHS and titrate dose upward slowly over time (weekly)
- Tamsulosin (Flomax)(selective α -1A blocker) – fewer SE than nonselectives, has no antihypertensive effects, costs a bit more
- 5 α -reductase inhibitors: Finasteride (Proscar), Dutasteride (Avodart)
 - Slowly reduces dihydrotestosterone levels → 20% decrease in prostate volume over 3-6 months
 - May work best in those with a palpably enlarged prostate
 - Best to use in combination with an α -blocker
 - Decreases PSA levels by about 50% → when using PSA to screen for prostate cancer, double the value to attain the actual number.
 - SE: decreased libido, ejaculatory disorder, impotence

Surgical Intervention

- Indications for surgery: failure of medical therapy, refractory urinary retention, inability to express urine without a catheter, recurrent infection, persistent hematuria, bladder stones, or renal insufficiency
- TURP – transurethral resection of the prostate. Most common surgery for BPH. Symptomatic improvement in 88%. SE include excessive bleeding (1%), retrograde ejaculation (70%), impotence (14%), partial incontinence (6%), total incontinence (1%)
- Open prostatectomy – symptomatic improvement in 98%, but is invasive and a/w more morbidity than TURP. Usually reserved for those with extremely large prostate or structural problems (protrusion into bladder, large bladder stone, urethral diverticulum).
- Other interventions: transurethral incision of the prostate (TUIP), transurethral microwave thermotherapy (TUMT), transurethral vaporization of the prostate (TUVF), transurethral electrovaporization of the prostate (TVP), transurethral needle ablation of the prostate (TUNA)

3. What is the next step in the management of a 65-year-old male that presents to the ER with inability to urinate and painful bladder distention?

- Decompression of bladder with 14-18 French Foley catheter (may downsize to 10-12 French if necessary)
- If h/o BPH, may require a cath with a firm Coude tip to “power-through” the narrowed urethra
- If unable to pass urethral cath, then _____ (usually under US guidance)
- If unable to pass urethral cath and no one trained in suprapubic cath placement will be available for hours, then _____

Prostate cancer (SU2 p104)

4. A 60-year-old male presents to the clinic for a Well-Male Exam and on digital rectal examination a hard nodule is palpated on the prostate. Lab work-up shows an elevated PSA. What is the next step in the management of this patient?

Epididymitis (SU2 p104) Testicular torsion (SU2 p104)

5. How can testicular torsion be differentiated from epididymitis?

	Torsion	Epididymitis
Onset	Acute, abrupt and often associated with a physical activity	Subacute and may be associated with STDs and/or anal intercourse
	No signs of infection	Possible signs of STD (urethral discharge, fever, dysuria, erythema)
Visual changes	Testicle may be raised and horizontal	Testicle in normal position and lie
Support		
Cremasteric reflex	Absent	Present
U/S	Compromised blood flow	Normal blood flow

6. Testicular Torsion vs. Epididymitis – Treatment

Torsion

- Rx: Surgical detorsion with bilateral orchiopexy within 6 hours

Epididymitis

- Rx < 35 = GC/Ch
→ ceftriaxone IM then doxycycline x10 days
- Rx > 35 or h/o anal intercourse = Enterobacteriaceae
→ fluoroquinolone x10-14 days

Infertility (male) (SU2 p105)

7. What are the characteristic features of a varicocele?

- Dilation of pampiniform plexus in the scrotum ("testicular mass")
- Dull, aching scrotal pain usually on the left (left-sided varicoceles are 10 times more common than right-sided)
- Right-sided varicocele may point to a _____
- Testicular atrophy on the affected side
- Infertility is common – varicoceles are present in 25% of infertile men vs. only 11% of fertile men.
- Color Doppler ultrasound shows retrograde flow to the scrotum

Impotence (SU2 p105)

8. What are the proper steps in the evaluation of a patient presenting with erectile dysfunction?

- History:
 - Onset and duration
 - Symptoms of depression (SIG E CAPS)
 - Medication and drug use
 - Psychological stressors and interpersonal conflict
 - If dysfunction is situational (e.g., only with one particular partner)
 - Presence of nocturnal or early-morning erections (absent if organic cause, present if psychogenic)
- Physical exam components:
 - Anal tone (neuro dysfunction)
 - Lower extremity sensation (neuro dysfunction)
 - Cremasteric reflex (neuro dysfunction)
 - Femoral and peripheral pulses (vasculogenic cause)
 - Penis (Peyronie's disease)
 - Testes (hypogonadism)
 - Secondary sexual characteristics (hypogonadism)
 - Visual fields (pituitary tumor)
 - Gynecomastia (prolactinoma)
- Serum lab tests: total testosterone, prolactin, TSH, +/- PSA
- If vasculogenic → cardiac stress test to assess for cardiac endothelial damage as well

9. What medications are known for causing erectile dysfunction?
 - Most antidepressants especially SSRIs
 - Spironolactone
 - Sympathetic blockers: clonidine, guanethidine, methyldopa
 - Thiazide diuretics, β -blockers
 - Ketoconazole
 - Cimetidine (but not ranitidine or famotidine)
 - Antipsychotics
10. What are the available treatments for a patient with erectile dysfunction?

First-line:

 - Phosphodiesterase inhibitors: sildenafil (Viagra), vardenafil (Levitra), tadalafil (Cialis)

Second-line:

 - Penile self-injectable drugs: papaverine, phentolamine, alprostadil
 - Vacuum and constriction devices

Third-line:

 - Penile prosthesis implantation

Other:

 - Androgen replacement if hypogonadism

Pediatric Genitourinary Concerns (SU2 p105 – SU2 p106)

Wilms' tumor (SU2 p105)

11. What is the classic presentation of the most common renal tumor in children?

Wilms' tumor:

- Most common age: _____
- Palpable flank mass (most common presenting symptom)
- Abdominal pain (30%)
- Hematuria (12-25%)
- Hypertension (25%)
- Possibly multiple other associated congenital anomalies including WAGR syndrome (Wilms' tumor, Aniridia, GU abnormalities, Retardation (mental))

Enuresis (SU2 p106)

12. At what age should nocturnal enuresis be treated? What are the treatment options?
 - Enuresis cannot be diagnosed until 5 years of age (chronological and developmental)
 - Treatment is usually delayed until the child is at least 7 years of age
 - First-line → Behavioral interventions:
 - Start toilet training if not yet attempted
 - Motivational therapy (e.g., star charts)
 - Restrict fluids before bed (with a compensatory increase in daytime fluids)
 - Nighttime chaperone to the toilet or scheduled waking to void using alarm clock
 - Enuresis alarm (pad with alarm device) in bed for classic conditioning. This is most effective long-term therapy
 - Second-line → Pharmacologic interventions:
 - High likelihood of recurrence upon discontinuation
 - Imipramine (Tofranil) for short-term (up to 6 weeks)
 - Desmopressin (DDAVP) orally (FDA 2007: intranasal desmopressin is no longer indicated for enuresis due to risk of hyponatremic seizures)
 - Indomethacin suppository
13. Posterior Urethral Valves
 - Most common obstructive urethral lesion in infants and newborns
 - Abnormal tissue folds in the distal prostatic urethra → thick-walled bladder and weak urinary stream and obstruction (bilateral hydronephrosis, megaureter, UTI)
 - Diagnosed with a voiding cystourethrogram
 - Definitive care – transurethral ablation of the abnormal tissue or urinary diversion (vesicostomy)

Genitourinary Part 3 Quiz

1. HYQ: A patient has signs of peritonitis and his clinical scenario favors rupture of the bladder (blunt trauma to a fully distended bladder). What portion of the bladder must have been injured to allow for a chemical peritonitis to have developed?
2. HYQ: What is the next step in the management of a woman with an uncomplicated cystitis?
3. HYQ: Newborn male has a distended palpable bladder and oliguria. What is the most common cause of congenital urethral obstruction?
4. What is the treatment for epididymitis?
5. What is the treatment for prostatitis? (SU2 p103)
6. What labwork is included in the work-up for erectile dysfunction?
7. What is the treatment for urethritis in men? (SU2 p103)
8. How do the signs and symptoms of testicular torsion differ from epididymitis? (SU2 p104)

	TORSION	EPIDIDYMITIS
Onset		
Infection		
Visual changes		
Support		
Cremasteric Reflex		
US		

9. What is the defining characteristic of a hydrocele?

Hematology and Oncology Part 1

Hemolytic anemia (SU2 p124)

1. What are the characteristic findings of hereditary spherocytosis?
 - Jaundice and gallstones
 - _____
 - Anemia with reticulocytosis and _____ mean corpuscular hemoglobin concentration (MCHC)
 - Higher incidence of pseudohyperkalemia as RBCs lyse after blood draw and intracellular potassium leaks
 - Peripheral smear reveals _____
 - Positive osmotic fragility test
2. What is the treatment for hereditary spherocytosis?
 - Folic acid 1mg daily
 - Red blood cell transfusions in cases of extreme anemia
 - _____ in moderate to severe disease

End of Session Quiz – Hematology and Oncology Part 1

1. HYQ: A teenage African American male presents to the ER with right hip pain and a hematocrit of 25%. What is the most likely diagnosis?
2. HYQ: What is the next step in the management of a patient with febrile neutropenia due to chemotherapy?
3. HYQ: What is the most common cause of anemia in elderly patients?
4. HYQ: What would you see on a blood smear of a patient with anemia due to lead poisoning?
5. HYQ: What is the cause of anemia that develops after taking a sulfa drug?
6. HYQ: Compare the serum iron, ferritin, and transferrin levels in iron deficiency anemia to anemia of chronic disease.
7. What lab markers suggest anemia due to hemolysis? (SU2 p124)

8. Identify which RBC disorders would have the following findings:

Findings	Disorder
Schistocytes (fragmented RBCs)	
Acanthocyte (spur cell)	
Bite cell	
Basophilic stippling of RBCs	
Peripheral neuropathy + sideroblastic RBCs	
Hypersegmented neutrophils	
Heinz bodies (denatured Hgb in RBC)	

9. Which vaccines are particularly important in children with sickle cell disease? (SU2 p131)
10. What complication occurs in 10% of patients with sideroblastic anemia? (SU2 p130)

Hematology and Oncology Part 2

Leukocyte Disorders (SU2 p132)

1. What is the differential diagnosis for serum eosinophilia?
D NAAACP
Drugs (NSAIDs, penicillins/cephalosporins)
Neoplasm
Allergies, asthma (Churg-Strauss), allergic bronchopulmonary aspergillosis
Adrenal insufficiency (Addison's disease)
Acute interstitial nephritis
Collagen vascular disease (PAN, dermatomyositis)
Parasites (such as Strongyloides, and Ascaris → Löeffler's eosinophilic pneumonitis)
(Other causes: HIV, hyper-IgE syndrome, hypereosinophilic syndrome, coccidioidomycosis, and numerous other potential causes)
2. What is the treatment for anaphylaxis?

Clotting Disorders (SU2 p133 – SU2 p136)

3. What drugs are known for causing thrombocytopenia?
 - Heparin (HIT = heparin-induced thrombocytopenia), abciximab (GP IIb/IIIa inhibitor)
 - Carbamazepine, phenytoin, valproate
 - Cimetidine
 - Acyclovir, rifampin
 - Sulfonamides (e.g., sulfasalazine, Bactrim)
 - Procainamide, quinidine
 - Quinine, gold compounds
4. What is the treatment for the most common inherited bleeding disorder?
Von Willebrand factor deficiency treatments:
 - _____ (which increases vWF secretion) is first-line for acute bleeding
 - Cryoprecipitate or Factor VIII concentrates for severe or refractory bleeding
 - _____ for menorrhagia
 - Avoid _____ and other platelet inhibitors
5. What are the most common causes of DIC?
6. What are the inherited diseases of hypercoagulation?
 - _____ – most common (40-50%)
 - Antithrombin III deficiency
 - Protein C deficiency
 - Protein S deficiency
 - Prothrombin gene mutation (prothrombin G20210A)
 - Hyperhomocysteinemia (MTHFR gene mutation)
 - Rarer disorders: dysfibrinogenemia, plasminogen deficiency

Hematologic Infections (HIV) (SU2 p136 – SU2 p141)

7. What are the criteria for the diagnosis of Systemic Inflammatory Response Syndrome (SIRS)?

SIRS = at least 2 of the following:

- _____ $> 38^{\circ}\text{C}$ or hypothermia $< 35^{\circ}\text{C}$
- _____ (RR > 20 bpm or PaCO₂ < 32 mmHg)
- _____ (HR > 90 bpm)
- _____ (WBC $> 12,000$), Leukopenia (WBC $< 4,000$), or bandemia ($> 10\%$ bands)

8. What is the treatment for infectious mononucleosis?

- There is no antiviral medication available for "mono" (acyclovir is of no benefit)
- NSAIDs or Tylenol for fever, sore throat, malaise
- Encourage rest and plenty of fluids
- Return to sport (risk of splenic rupture):
 - May return gradually to noncontact sports 3 weeks after symptom onset
 - May return gradually to contact sports 4 weeks after symptom onset
- Steroids only helpful if impending airway compromise due to enlarged tonsils or if life-threatening sequelae develops (e.g., fulminant liver failure, hemolytic anemia, thrombocytopenia)

Hematology and Oncology Part 2 Quiz

1. HYQ: What is the classic pentad for thrombotic thrombocytopenic purpura?
2. HYQ: What is the most common mutation in white patients that predisposes to venous thrombosis?

3. What is the mechanism of action of the following drugs? (SU2 p135)

Streptokinase	
Aspirin	
Clopidogrel	
Abciximab	
Tirofiban	
Ticlopidine	
Enoxaparin	
Eptifibatide	

4. What lab test is used to monitor warfarin? Heparin? LMWH?
5. What is the treatment for von Willebrand's disease? (SU2 p134)

6. What lab changes would you see in the following diseases?

Disorder	Platelet Count	Bleeding Time	PT	PTT
HUS or TTP				
Hemophilia A or B				
Von Willebrand's disease				
DIC				
Warfarin use				
End stage liver disease				
Aspirin use				

7. What are the criteria for the diagnosis of SIRS? (SU2 p137)
8. What is the most important medication in the treatment of anaphylaxis? (SU2 p133)
9. What are the most common causes of DIC?

Hematology and Oncology Part 3

Hematologic Neoplastic Conditions (SU2 p141 – SU2 p143)

1. What is the classic presentation of polycythemia vera?

Most signs and symptoms are related to hyperviscosity causing vascular sludging.

- Average age of onset 50-60 years (but children and young adults can be affected as well)
- Visual disturbances – blurred vision, amaurosis fugax, scintillating scotoma, ophthalmic migraine
- _____ (15%) – stroke, MI or angina, claudication, DVT or PE, Budd-Chiari syndrome, superficial thrombophlebitis
- Erythromelalgia – _____ with erythema, pallor, or cyanosis
- _____ (esp. after a warm bath)
- _____
- _____
- elevated H&H and red cell mass, basophilia, leukocytosis (40%), thrombocytosis (60%)

2. What is the treatment for polycythemia vera?

- Phlebotomy to keep hematocrit below 45% in men, 42% in women
 - Induces a desirable iron deficiency anemia → do not supplement iron!
- Add _____ if at high-risk for thrombosis (over age 70, prior thrombosis, platelets > 1,500,000, or presence of cardiovascular risk factors)
- _____ qd to help prevent thrombosis (MI, CVA, PE, DVT)
- If refractory pruritis or refractory erythrocytosis, → _____
- If symptomatic hyperuricemia, → allopurinol 300mg qd

Hematology and Oncology Part 3 Quiz

1. What type of leukemia matches the following description?
 - Most common neoplasm in children (peak age 3-4 yrs)
 - Most common leukemia in adults (average age of onset 50yrs)
 - Philadelphia chromosome is almost always seen
 - Smudge cells on peripheral smear
 - Peripheral blasts are PAS+ and TdT+
 - Peripheral blasts are PAS-, myeloperoxidase+ and have Auer rods
 - Pancytopenia in a Down syndrome patient
2. HYQ: What medication is associated with remission in 95% of patients with CML?
3. A 21-year-old male patient presents with recent weight loss, pruritis, and night sweats. Physical exam reveals hepatosplenomegaly and a nontender cervical lymphadenopathy. What do you immediately suspect?
4. Which blood cell pathology matches the following high-yield description?

Associated with Epstein-Barr virus (in Africa)	
Reed-Sternberg cells, cervical lymphadenopathy, night sweats	
Bence-Jones proteins, osteolytic lesions, high calcium	
Translocation 14;18	
Most common lymphoma in the US	
Translocation 8;14	
Translocation 9;22	
Most common form of Hodgkin's lymphoma	
"Starry-sky pattern" due to phagocytosis of apoptotic tumor cells	
High hematocrit/hemoglobin, pruritus (especially after hot bath or shower), burning pain in hands or feet	
Blood smear (hair-like projections), splenomegaly	

5. Which antiretroviral or antiretroviral class matches the following statement? (SU2 p140)
 - SE: lactic acidosis
 - SE: GI intolerance
 - SE: pancreatitis
 - SE: peripheral neuropathy
 - SE: megaloblastic anemia
 - SE: rash
 - SE: hyperglycemia, diabetes mellitus, and lipid abnormalities
 - Given to pregnant women with HIV
 - Regimen for occupational HIV exposures
6. Regarding antibiotic prophylaxis in HIV patients, when, with what, and for what organisms? (SU2 p140)

Musculoskeletal Disorders Part 1

Common Adult Orthopedic Conditions (SU2 p196 – 198)

Dislocations (SU2 p196)

1. How does an anterior shoulder dislocation present differently than a posterior shoulder dislocation?

	Anterior Shoulder Dislocation	Posterior Shoulder Dislocation
Arm position	External rotation and slight abduction	<ul style="list-style-type: none">• Internal rotation and adduction• Unable to externally rotate
Neurovascular compromise	_____ artery and nerve at risk	Unusual
Classic scenario	Blow to abducted, externally rotated, extended arm (blocking a basketball shot)	<ul style="list-style-type: none">• Blow to anterior shoulder• _____ and electrocution
Physical exam	Prominent acromion (if thin patient) and loss of shoulder roundness	Posterior prominence and anterior shoulder is flat

2. What is the treatment for an acute anterior shoulder dislocation presenting to the ER?

- Pain control options:
 - No pain control
 - Lidocaine 1% 20mL injection into the glenoid cavity
 - Narcotic pain relief
 - Conscious sedation
- Reduction techniques (encourage patient to relax shoulder):
 - Scapular manipulation (upright): patient sits upright → pressure applied medially to scapular tip while arm with flexed elbow receives gentle downward traction
 - External rotation technique: with the patient supine, arm adducted and elbow flexed, the patient's forearm is gently rotated outward so that the arm gradually externally rotates (while adduction is maintained). When pain or spasm is felt, the rotation stops and the patient is allowed to relax (+/- Milch technique: once the arm is fully externally rotated, then abduct to the overhead position)
 - Stimson technique: patient prone → 10-15 pounds of traction (e.g., saline bag in a bucket) is placed on the patient's wrist splint (e.g., wrapped Kerlex or prefab splint) and allowed to hang over edge of bed for 30 minutes +/- pressure applied medially to scapular tip
 - Traction-countertraction techniques (e.g., wrap a bed sheet under patient's axilla then apply outward pulling force to the dislocated arm while another person pulls the sheet in the opposite direction)
- Immobilization with a sling and Ortho follow-up in 1 week

Fractures (SU2 p196)

3. What nerve is damaged when a patient presents with the following symptom (upper extremity)?

- Claw hand
- Ape hand
- Wrist drop
- Scapular winging
- Unable to wipe bottom
- Loss of forearm pronation
- Cannot abduct or adduct fingers
- Loss of arm (shoulder) abduction
- Weak lateral (external) rotation of arm
- Loss of arm (elbow) and forearm (wrist) flexion
- Loss of forearm (wrist) extension
- Trouble initiating arm (shoulder) abduction
- Unable to abduct arm beyond 10 degrees
- Unable to raise arm above horizontal

4. What nerve is most at risk of injury with the following types of fractures/injury?
 - Shaft of the humerus
 - Surgical neck of the humerus
 - Supracondylar of the humerus
 - Medial epicondyle
 - Anterior shoulder dislocation
 - Injury to the carpal tunnel

5. A patient comes to the ER with c/o wrist pain after a fall. What findings lead to believe there is a scaphoid fracture?
 - Any time there is _____ associated with traumatic wrist/hand pain, a scaphoid fracture should be suspected regardless of the presence/absence of a visible fracture on X-ray. Splinting is indicated until definitive diagnosis can be made with bone scan, MRI, or repeat X-ray at a later date.

6. What is the treatment for a scaphoid fracture?
 - Short-arm thumb spica splint then cast for
 - 4-6 weeks in distal fracture
 - 10-12 weeks in middle fracture
 - 12-20 weeks in proximal fracture (least vascularization and highest risk of avascular necrosis)
 - If displaced, open-reduction and long-arm thumb spica splint

7. What are the steps in the management of a femur fracture?
 - Maintain hemodynamic stability with IVF and PRBCs if necessary
 - If closed femur shaft fracture, closed reduction and traction until able to perform ORIF in order to limit bleeding
 - If open fracture: copious irrigation with normal saline (at least 3 liters) then cover wound with sterile dressing, apply gentle pressure dressing to control bleeding, prophylactic antibiotics for gram (+) coverage, to OR within 6 hours for debridement, pulsatile lavage irrigation, ORIF, and delayed primary closure
 - Pain control with narcotics
 - Definitive care as soon as OR can be ready: operative reduction with internal fixation (ORIF) with intramedullary nail
 - _____ prophylaxis

8. What types of fractures would prompt you to search for a ruptured thoracic aorta?

9. What are the general requirements in the treatment of an open fracture in the ER?
 - Address wound hemorrhage with direct pressure
 - Obtain X-rays
 - Antibiotic coverage:

Type of Open Fracture	Antibiotic
Grade I or II	Cefazolin 1g q8hours (or other first gen. cephalosporin)
Grade III (extensive soft tissue damage and/or high contamination)	Cefazolin (above) + Aminoglycoside
Farm injury	Cefazolin + Aminoglycoside + Penicillin

- Apply saline-soaked sterile dressing to wound
- Provisional fracture reduction and splint application
- Operative intervention within 8 hours to decrease infection and osteomyelitis
- If surgical delay is anticipated, then remove obvious foreign bodies and irrigate gently. Avoid probing and pressure irrigation which may force debris deeper into wound. Do not remove any bone fragments in the ER
- Tetanus prophylaxis

Sprains (SU2 p197)

10. What is the treatment for a sprained ankle?

Acute care (first 24 hours)

- Rest: use crutches to assist in weight bearing until able to walk with a normal gait
- Ice or cold pack for 20 minutes every 2 hours (when awake) for 48 hours
- Compression with ACE wrapped from toes to calf or AirCast
- Elevation above the level of the heart whenever possible
- NSAIDs
- ROM exercises: plantar/dorsiflexion, foot circles, tracing alphabet in the air with big toe, grab marbles with toes

Rehabilitation (start after 24-48 hours → continue until pain free)

- Continue crutches or cane use until able to walk with a normal gait
- Start ROM exercises on day 1 (stated above)
- Lace-up ankle supports during the rehab period are superior to semi-rigid ankle supports (e.g., AirCast), but semi-rigid supports are better than ACE wrap alone.
- Immobilization (e.g., rigid boot) of a grade I or II sprain may actually delay a return to work/sport.
 - Grade 1 Sprain – overstretching of ankle muscles, microscopic tears, able to bear weight
 - Grade 2 Sprain – incomplete tear, painful to bear weight, swelling/tenderness/ecchymosis
 - Grade 3 Sprain – complete tear, significant joint instability, loss of function and motion, unable to bear weight
- Warn patients of increased risk of DVT (x3) and to RTC or ER if new calf swelling or tenderness.

Ligament tears (SU2 p197)

11. What type of knee injury matches the following statement?

- Most commonly injured knee ligament
- Positive Lachman test
- Positive McMurray test aids in diagnosis
- Common dashboard knee injury in an MVA

Compartment syndrome (SU2 p197)

12. What are the characteristic features of compartment syndrome?

- Earliest sign: pain in excess of what is expected and occurs even with passive motion
- 6 P's: _____
- Measured compartment pressures \geq _____ mmHg
- Most common compartments: volar compartment of forearm, anterior compartment of leg
- Most commonly due to fractures (supracondylar humerus, both-bone forearm, proximal tibia)

Spine (SU2 p199 – SU2 p201)

Spinal stenosis (SU2 p200)

13. What imaging study is best for detecting spinal cord compression? Which is best for detecting spinal cord lesions as in multiple sclerosis?

- Spinal cord compression –
- Spinal cord lesions (e.g., MS) –

Brachial plexus (SU2 p201)

14. What is the best imaging study for visualizing the brachial plexus?

End of Session Quiz – Musculoskeletal Part 1

1. What are the classic symptoms of carpal tunnel syndrome? (SU2 p196)
2. What is the difference between a Monteggia fracture and a Galeazzi fracture?
3. What complications should you look for with the following types of fracture/injury? (SU2 p198)

Fall on outstretched arm → snuffbox tenderness	
Anterior shoulder dislocation	
Fracture of the fifth-metacarpal neck	
Humerus fracture	
Hip fracture	
Femur fracture	
Tibial fracture	
Pelvic fracture	

4. What nerve is most at risk of injury with the following types of fractures/injury?
 - Shaft of the humerus
 - Surgical neck of the humerus
 - Supracondylar of the humerus
 - Medial epicondyle
 - Anterior shoulder dislocation
 - Injury to the carpal tunnel
5. What is the cause of low back pain given the following hints at presentation? (very HY!)
 - Pain increases with passive straight leg raise
 - Pain lessens with flexion at the hips (e.g., bending over shopping cart)
 - Elderly, weight loss, pain constant but worse when supine
 - Acute urinary retention
 - Pain made worse by walking and standing (AKA pseudoclaudication)
 - Loss of foot dorsiflexion and pain on crossed straight leg raise
 - Pain limited to the paraspinal region
6. What is the treatment for compartment syndrome? (SU2 p197)
7. What scenarios favor a posterior shoulder dislocation? (SU2 p 196)

Musculoskeletal Disorders Part 2

Lyme disease (SU2 p205)

1. What is the classic presentation and clinical course of Lyme disease?
 - a. Early localized disease – 80% of patients, usually within 1 month
 - Erythema chronicum migrans – bull's eye rash with central clearing that expands over days to weeks
 - +/- constitutional symptoms (fatigue, headache, myalgias, arthralgias,...)
 - b. Early disseminated disease – weeks to months after the tick bite, may include any of the following:
 - Meningitis (lymphocytic)
 - Unilateral or bilateral cranial nerve palsies (esp. of the facial nerve → “bilateral Bell's palsy”)
 - Radiculopathy
 - Peripheral neuropathy
 - Carditis (AV heart block, myopericarditis)
 - c. Late Lyme disease – months to years after infection onset
 - Arthritis (esp. knee)
 - Subacute encephalitis
2. What is the treatment for Lyme disease? What is the treatment for Rocky Mountain Spotted Fever?
 - Early Lyme disease treatment options (14-21 days):
 - _____ 100mg PO bid (preferred agent, can be dosed over only 14 days, avoid in pregnancy)
 - Amoxicillin 500mg PO tid
 - Cefuroxime 500mg PO bid
 - Late Lyme disease (carditis, encephalitis, facial nerve paralysis, arthritis) → usually Ceftriaxone 2g IV q24 hours x 14-28 days
 - Rocky Mountain Spotted Fever treatment options:
 - Doxycycline 100mg PO bid x7 days
 - (Chloramphenicol 50mg/kg daily divided in four doses in pregnant patients)

End of Session Quiz – Musculoskeletal Part 2

1. Compare PTH, alkaline phosphatase, serum calcium, and serum phosphate levels in patients with the following diseases: (SU2 p116)

	Ca ²⁺	Phos	Alk Phos	PTH
Paget's Disease				
Osteomalacia / Rickets				
Chronic renal failure				
Osteoporosis				
Osteopetrosis				
Primary hyperparathyroidism				
Hypoparathyroidism				
Pseudohypoparathyroidism				

2. In cases of an unhelpful x-ray and unavailable MRI, what 3 studies can be used to make the diagnosis of osteomyelitis? (SU2 p204)
3. What disease should you include in your differential with arthropathy of the following joints? (FA2 p171, B&W p392)
- DIP and PIP
 - PIP and MCP (but not DIP)
 - isolated MCP (squared-off bone ends and hook-like osteophytes of the MCPs)
4. What are the most common causes of bony metastasis? (SU2 p210)
5. What is the classic radiological appearance of osteosarcoma? (SU2 p210) of Ewing's sarcoma? (SU2 p211)
6. What is the treatment for Lyme disease? (SU2 p205) for Rocky Mountain Spotted Fever?
7. What medications are used in the treatment of acute gout? (SU2 p203) of pseudogout? (SU2 p203)
8. What treatment options are available to patients with osteoporosis? (SU2 p201)
9. What are some of the endocrine causes of osteoporosis?
10. Which disease matches the following description?
- knee x-ray reveals calcification of the menisci
 - hats no longer fit + deafness
 - needle-shaped, negatively birefringent crystals
 - bone pain/tenderness with elevated WBC, CRP, and ESR
 - child with low-trauma fractures
 - narrowing of the marrow cavity results in low H&H
 - 55 year-old female that trips and sustains a distal radius fracture
11. What is the empiric treatment for septic arthritis? (SU2 p204)

Musculoskeletal Disorders Part 3

Rheumatologic Diseases (SU2 p206 – SU2 p210)

1. What are the diagnostic criteria for rheumatoid arthritis?

(4 or 7 criteria required) (Arthritis Rheum 1988;31:315)

- Morning stiffness lasting at least 1 hr (for more than 6 weeks)
- Symmetrical peripheral polyarthritis (for more than 6 weeks)
- MCP, PIP, or wrist involvement (for more than 6 weeks)
- More than 3 joints involved with soft tissue swelling or fluid (for more than 6 weeks)
- Rheumatoid nodules- subQ nodules over bony prominences, extensor surfaces, or juxtaarticular regions (in 30% of patients)
- Elevated serum RF (seen in ¹RA (70-80%), ²Sjogren's (70%), ³SLE (20-30%), ⁴healthy elderly (5-10%)
Adding anti-cyclic citrinullated peptide (anti-CCP) antibody titers greatly improves diagnostic accuracy especially early in the disease.
- Radiographic erosions of cartilage or bony decalcification (hands, wrists, or feet)

2. What medications are considered first-line treatments for rheumatoid arthritis?

- NSAIDs at full doses (ibuprofen 800mg qid, naproxen 500mg bid, Celebrex 100mg bid) then taper to lowest dose for symptom relief
- Tylenol, Ultram, or opiates prn pain
- Disease modifying antirheumatic drugs (DMARD) to slow or even stop progression of RA:
 - _____
 - _____
 - _____
 - Leflunomide
 - Cyclosporine
 - _____ or anakinra
 - (Less frequently used: azathioprine, penicillamine, gold)

3. What is the classic presentation of dermatomyositis?

Rash features

- Heliotropic (periorbital) red-purple rash
- "Shawl sign" – rash involving the shoulders, upper chest, and back that is worsened by UV light exposure
- Gotttron's papules – papular rash with scales on the dorsum of the hands at the bony prominences (may be mistaken for psoriasis)
- Erythroderma of the malar region and forehead
- "Mechanic's hands" – roughened, cracking skin on the tips and lateral aspects of the fingers

Polymyositis features

- Symmetric proximal muscle weakness
- Myalgias and muscle tenderness in 25-50% of patients

4. What is the treatment for fibromyalgia?

- Reassurance- that it is a real illness that is benign, not life-threatening, and not deforming
- Walking, strength training, and stretching daily (Archives of Internal Medicine 2007;167:2192)
- Relaxation techniques
- Stress reduction programs
- Encourage journaling and emotional writing of past traumatic experiences.
- Sleep appropriately – address any sleep hygiene issues
- Address any other psychiatric disorders: depression, anxiety, PTSD

Medical treatment options

- Elavil (amitriptyline) or nortriptyline 25-50mg qHS → improvement in 25-45% of patients
- Tylenol 650mg + Ultram 75mg QID → 50% pain reduction
- Pregabalin (Lyrica) (FDA approved for fibromyalgia June 2007)
- Duloxetine (Cymbalta) (FDA approved for fibromyalgia June 2008)
- Fluoxetine 20-80mg qAM (+/- Elavil qHS)
- Milnacipran (FDA approved for fibromyalgia Jan 2009)

Scleroderma (SU2 p209)

5. How is the diagnosis of CREST scleroderma (AKA limited cutaneous systemic sclerosis) made?

The diagnosis is primary clinical, but lab studies can support the clinical diagnosis.

- Calcinosis cutis – subQ calcifications often in the fingers, not always present
- Raynaud's phenomenon – cyanotic vasoconstriction especially in the fingers
- Esophageal dysmotility – due to lower esophageal sphincter sclerosis → reflux, dysphagia
- Sclerodactyly – skin fibrosis especially at the fingers, hands, and face
- Telangiectasias – on the lip, hand, or face; not always present
- Labs: anti-Scl-70, anti-RNA, anti-U1 RNP, anti-centromere
(Lab work can support the diagnosis but cannot rule out scleroderma.)

Pediatric Orthopedics (SU2 p211 – SU2 p215)

Developmental dysplasia of the hip (DDH) (SU2 p211)

6. Which infants should be screened for developmental dysplasia of the hip?

Obtain hip sonogram at 6 weeks if:

Slipped capital femoral epiphysis (SCFE) (SU2 p212)

7. What is the treatment for slipped capital femoral epiphysis?

- Avoid weight bearing with bedrest, crutches, and/or wheelchair until surgically repaired.
- Prompt surgical pinning of the head of the femur (single screw to the center of the epiphysis)
 - If acute/unstable → admit to hospital for surgical treatment
 - If chronic/stable → urgent outpatient evaluation
- (Closed reduction of acute slips prior to pinning is controversial.)

Rickets (SU2 p212)

8. Which infants should receive vitamin D supplementation?

The American Academy of Pediatrics recommends that all children (including breastfed infants) should receive vitamin D supplementation of 400 IU daily starting the _____ (October 2008). About 32 ounces of regular formula (1 quart) is required to obtain this amount of vitamin D on a daily basis. This recommendation is particularly important if vitamin D generated from sunlight exposure is limited due to environmental limitations or darker skin.

Juvenile rheumatoid arthritis (JRA) (SU2 p212)

9. What is the treatment for juvenile rheumatoid arthritis?

_____ are the drugs of choice, but if unresponsive to a trial of 2 different NSAIDs over at least 6 weeks then second-line is _____.

Osgood-Schlatter disease (SU2 p212)

10. What are the characteristic features and treatment for Osgood-Schlatter disease?

- Most common symptom is _____ that increases over time and is worsened by quadriceps contraction (running, jumping)
- Signs at the _____ may include soft tissue swelling, a palpable bony mass, and/or pain upon quadriceps flexion
- Treatment:
 - It is OK to continue sports despite pain
 - Typically resolves in 6-18 months
 - Rehab including stretching the hamstrings and quadriceps and strengthening the quadriceps
 - Protective pad over the tibial tuberosity (AKA Osgood-Schlatter pad)
 - Ice to the affected area after activities
 - NSAIDs for pain
 - (Knee immobilizers are contraindicated)

Clavicular fracture (SU2 p213)

11. What is the treatment for a clavicle fracture in a newborn?

- Occurs in 0.2-3.5% of SVDs.
- No treatment needed (not necessary to immobilize by pinning the shirt)
- Evaluate for brachial plexus injury.

12. What is the treatment for a mid-third clavicle fracture?

- Figure-of-eight strap with shoulders at "position of attention" and/or arm sling until fracture site and range of motion are painless (AKA clinical healing) (usually 4-8 weeks)
 - Instruct patient to tighten the strap regularly to maintain tension (assistance required)
 - Outcomes no different with figure-of-eight than with arm sling
 - Figure-of-eight can be uncomfortable, but it leaves the elbow and hand free for daily activities
- Follow-up in 1-2 weeks (ortho consult not necessary) then every 2-3 weeks until asymptomatic (usually 6-12 weeks in adults, 3-6 weeks in children)
- Repeat X-ray at 6 weeks and upon clinical healing → ortho consult if nonunion after 12 weeks
- Recovery: elbow range of motion (ROM) exercises starting day 1, shoulder ROM exercises after immobilization (6 weeks), use of arm as pain permits

Nursemaid's elbow (SU2 p213)

13. A child presenting to the ER with his parents is unable to bend his elbow after his father jerked him out of the street an hour prior to presentation. What is the treatment?

Nursemaid's elbow → reduce by gently flexing and _____ the arm with one hand while supporting the elbow and applying gentle pressure to the radial head with the other → give the child a popsicle that they can eat only by using the recently reduced arm to encourage movement and confirm successful treatment (no need to immobilize)

Legg-Calvé-Perthes disease (SU2 p214)

14. What is the treatment for Legg-Calvé-Perthes Disease?

- Non-weight bearing on the affected side for an extended period of time
- If limited femoral head involvement and full ROM → observation
- If extensive femoral head involvement or limited ROM → options include bracing, hip abduction with a Petrie cast, or an osteotomy

15. What is the classic presentation of childhood spondylolisthesis?

- Forward (anterior) slip of a vertebrae resulting in a palpable "step-off" on PE (usually L5 over S1)
- Subacute back pain exacerbated by hyperextension of the spine
- Knee-flexed, hip-flexed gait in cases where the sacrum becomes relatively more vertical and hip extension is impaired
- Possible neurological dysfunction including urinary incontinence (very rare)

Musculoskeletal Disorders Part 3

1. What disease is responsible for a painful limp in a child in each of the following scenarios?

Scenario / Finding	Disease
X-ray reveals femoral head sclerosis	
X-ray reveals ice-cream scoop (femoral head) falling off of cone (femur)	
Obese, male adolescent with dull hip pain and in ability to bear weight	
Acute onset of tibial pain, fever, malaise, elevated ESR, no joint pain	
Acute onset of knee pain, fever, elevated ESR, leukocytosis	
7-year-old with growth delay and inner thigh pain	
6-year-old with unilateral hip pain for 5 days, low-grade fever, spontaneous resolution	
13-year-old male with pain and swelling at the tibial tuberosity	

2. What is the treatment of Nursemaid's elbow? (SU2 p213)
3. What is the treatment for slipped capital femoral epiphysis? (SU2 p212)
4. What is the treatment for juvenile rheumatoid arthritis? (SU2 p212)
5. What is the treatment for Osgood-Schlatter disease? (SU2 p212)
6. What is the treatment for developmental dysplasia of the hip in children younger than 6 months of age? (SU2 p211)
7. Which medications are FDA-approved for the treatment of fibromyalgia? (SU2 p208)
8. Describe the rash of dermatomyositis. (SU2 p208)
9. Which rheumatologic disease matches the following description?
- Proximal muscle weakness and facial rash
 - Pain and stiffness in the hips and shoulders
 - Muscle pain and tenderness in multiple distinct locations
 - Male in his 20s with low back pain that improves with exercise
 - Jaw claudication and difficulty standing from a chair
 - Pencil in cup deformities of the DIP and PIP joints
 - Bamboo spine on x-ray
 - Arthritis + oral ulcers + proteinuria
 - Flexed DIP and hyperextended PIP

Dermatology Part 1

DEFINITION	EXAMPLES	TERM
Flat spot less than 1cm (non-palpable, just visible)	Freckles, tattoos	
Flat spot >1cm	Port-wine stain	
Solid, elevated lesion < 1cm (palpable)	Wart, acne, lichen planus	
Same as papule but > 1cm and flat-topped	Psoriasis	
Palpable, solid lesion > 1cm and not flat-topped	Small lipoma, erythema nodosum	
Elevated, circumscribed lesion < 5 mm containing clear fluid (small blister)	Chickenpox, genital herpes	
Same as vesicle but > 5mm (large blister)	Contact dermatitis, pemphigus	
Itchy, transiently edematous area	Allergic reaction	

Infections (SU2 p216 – SU2 p219)

Cellulitis, Folliculitis, and Skin abscess (SU2 p216)

1. Describe the proper treatment for skin abscesses.

- I&D if overt clinical abscess or proven by sono or CT
 - If at risk for endocarditis, then antimicrobial prophylaxis prior to I&D (e.g., vancomycin 1g IV 1 hr prior to I&D or TMP-SMX DS PO x1)
- Culture in aerobic and anaerobic tubes. Ideally anaerobic sample is obtained via needle aspiration to avoid air exposure
- Surgery consult for I&D in OR when: abscess particularly large or in sensitive area
- No antibiotic therapy needed if < 5cm and low-risk patient
- Antibiotics for 10-14 days for presumed Community-Acquired MRSA
 - Bactrim DS bid + RIF 300mg bid
 - Clindamycin (may have inducible resistance) 300mg q6hr + RIF 300mg bid
 - Minocycline (or doxycycline) 100mg bid + RIF 300mg bid
 - Linezolid 400mg or 600mg bid (\$\$\$)

Necrotizing fasciitis (SU2 p216)

2. What are some of the distinguishing characteristics of necrotizing fasciitis?

- Unexplained, excruciating pain in the absence of or beyond areas of cellulitis
- Erythema with blister and bullae formation and possible crepitus
- DM patient with foot cellulitis and signs of systemic toxicity
- Perineal cellulitis with abrupt onset and rapid spread (Fournier's gangrene)

3. What is the general treatment for necrotizing fasciitis?

- Immediate, extensive surgical debridement
- Antibiotics:
 - General empiric polymicrobial coverage – imipenem (or meropenem) +/- vancomycin
 - If Streptococci – penicillin G +/- clindamycin
 - If Clostridia – penicillin G + clindamycin
- Treatment for shock if it arises (IVF, dopamine)

Gangrene (SU2 p217)

4. What are the distinguishing characteristics of gangrene?

- Wet gangrene – bruised, swollen, blistered with pus
- Dry gangrene
 - Early signs – ache, cold, pallor
 - Final signs – bluish-black, dry, hard, shriveled tissue
- Gas gangrene
 - Early signs – pain and swelling around an injury site (often surgical incision)
 - Classic signs – initially pale then dark purplish-red, tense, tender, and soft-tissue crepitus
 - Signs of systemic toxicity – tachycardia, low-grade fever, diaphoresis +/- shock and multisystem organ failure

5. What is the treatment for a limb with dry gangrene?
 - Autoamputation over time
 - Angiography to evaluate the extent and location of peripheral artery disease → distal bypass of stenotic areas → if circulation improves and healing is adequate, then amputation of the affected region
6. What is the treatment for a wet gangrene infection?
 - Emergency debridement or guillotine amputation of the infected portion of the foot then revision to a below or above the knee amputation 72 hours later
 - (Antibiotics are indicated if cellulitis or gas gangrene is present)

Acne vulgaris (SU2 p217)

7. What treatment options are available for patients with acne vulgaris?
 - Topical retinoid – normalizes follicular keratinization; examples include Retin-A (tretinoin), Differin (adapalene), and Tazorac (tazarotene)
 - Topical retinoid + topical antimicrobial (such as sulfacetamide, clindamycin, or dapsone)
 - Topical retinoid + oral antibiotic (such as tetracycline, minocycline, doxycycline, TMP-SMX, or azithromycin)
 - Oral contraceptive pills in addition to one of the above in female patients
 - Topical retinoid + benzoyl peroxide + topical and/or oral antibiotic
 - Spironolactone (anti-androgenic) in addition to one of the above
 - Oral Isotretinoin (Accutane) for 15-20 weeks; used as a last resort
8. Which acne medication is known for causing photosensitivity?
9. What should you know about oral isotretinoin (Accutane) in the treatment of acne?
 - Usually, try 2-3 other therapies prior to using this therapy
 - Check β HCG, CBC, lipids, LFTs regularly
 - (25% develop increase in triglycerides (>800 → risk of pancreatitis)
 - For dry skin – moisturizing soap, lotions, Chapstick, Polysporin to nares PRN, eye drops PRN
 - Screen for depression and suicidal ideation each visit
 - Never use with tetracycline → combined risk of pseudotumor cerebri
 - OCPs should be prescribed to women patients due to high risk of teratogenic side effects

Rosacea

10. What is the classic presentation of rosacea? (HYI)
 - Middle-aged patient
 - Facial erythema with telangiectasias starting at the nose and cheeks
 - Recurrent facial flushing provoked by various stimuli including hot/spicy foods, alcohol, temperature extremes, emotional reactions
 - Inflammatory papules, pustules, cysts and/or nodules similar in appearance to acne but without comedones
 - Ocular blepharitis, conjunctivitis, and/or keratitis
 - Rhinophyma (sebaceous gland hyperplasia of the nose)
11. What are the treatment options for rosacea?

Topical Treatment:

 - Rosula (sulfacetamide 10% + sulfur 5%) lotion/gel qd-tid for redness
 - Metro-gel 0.75% qd-bid, or metronidazole cream 1% qd
 - Rhinophyma may require laser therapy

Systemic Treatment:

 - Tetracycline 1-1.5g/d in divided doses until clear then reduce gradually to 250-500mg qd
 - Doxycycline (phototoxic) or minocycline (blue dyspigmentation) 50-100mg bid then down to 50mg qd
 - Accutane 0.1-0.2mg/kg/day for severe refractory cases (may need up to 1mg/kg/d)

Varicella (SU2 p218)

12. What are the clinical features of varicella chicken pox?

- Prodrome of malaise, fever, pharyngitis, headache, and myalgia for 24 hours prior to rash onset
- Pruritic evolving rash: red macules → teardrop vesicles → rupture and crusting over
 - Vesicular rash starts on the face and trunk then spreads to extremities
 - Rash appears in successive crops of vesicles over 2-4 days
 - Most all lesions are fully crusted by 6 days
- Skin bacterial superinfections may occur (group A *Strep. pyogenes*)
- Adults may also develop pneumonia and/or encephalitis

13. What treatments are available for children with chicken pox (varicella)?

- Antihistamines for pruritis
- Cut fingernails closely to avoid excoriations leading to bacterial superinfections
- Acetaminophen for fever
- No need for acyclovir in otherwise healthy children younger than 12 (AAP recommendation) because although it has been shown to decrease duration by 1 day and decrease the number of lesions, it does not reduce complications
- Acyclovir for the following groups: older than 12 years of age, household contacts, h/o chronic cutaneous or cardiopulmonary disorders, those taking intermittent oral or inhaled steroids, those taking chronic salicylates

14. What is the treatment for an uncomplicated varicella zoster outbreak in an elderly patient?

- Antiviral therapy if uncomplicated zoster presenting within 72 hours of clinical symptoms
 - Valacyclovir 1000mg tid for 7 days – lowest dosing frequency but high cost
 - Famciclovir 500-750mg tid for 7 days
 - Acyclovir 800mg five times daily for 7 days – high dosing frequency but low cost
- Analgesia with opioids
- Corticosteroids (Prednisone 40mg tapered over 7 days) only if severe symptoms and no contraindications. Usually the high risk of side effects outweighs the only modest benefits.

15. What medications are used in the treatment of postherpetic neuralgia?

Warts (SU2 p218)

16. Which HPV types cause skin warts? Which cause genital warts?

17. What are the different treatment options for condyloma acuminata (genital warts)?

- Spontaneous regression of small asymptomatic warts within 3 months occurs about 25% of the time
- Podophyllotoxin (self-administered) (for vulvar lesions in nonpregnant women)
- Podophyllin (for vulvar lesions in nonpregnant women)
- Trichloroacetic acid (TCA) – often the first-line treatment
- Imiquimod (self-administered) (for vulvar lesions in nonpregnant women) – induces interferon mediated antiviral response
- Cryoablation with liquid nitrogen

Fungal infections (SU2 p219)

18. What are the characteristic features of tinea versicolor?

- Pale, velvety pink (“salmon-colored”), light-brown, or whitish hypopigmented macules
- Usually limited to the upper trunk and extremities
- Lesions do not tan
- Lesions do not appear scaly, but scale when scraped
- Microscopic exam reveals both hyphae and spores (“spaghetti and meatballs”) in 10% KOH prep

19. What are the treatment options for tinea versicolor?

- Topical OTC antifungal for 2 weeks (terbinafine (Lamisil), clotrimazole (Lotrimin))
- Selenium sulfide (foam, solution, shampoo) qd-bid daily to affected areas for 1 week → then q1-3 weeks for prophylaxis
- Ketoconazole 2% shampoo daily for 3 days
- Oral antifungal for extensive disease: ketoconazole, fluconazole, itraconazole

20. What is the treatment for onychomycosis?

- First confirm diagnosis by sending a nail clipping for pathologic diagnosis. Onychomycosis is only responsible for 50-60% of abnormal appearing nails
- Lamisil and Sporanox have cure rates of only 60-70%
- Strongly consider pretreatment LFTs and mid-treatment LFTs
- Lamisil (terbinafine)
 - Fingernails 250mg PO qd x6 weeks
 - Toenails 250mg PO qd x12 weeks
(Off-label dosing: 250mg qd x7d every 2-3m x 1yr may have better efficacy)
- Sporanox (itraconazole)
 - fingernails 200mg PO qd x8 weeks, or 400mg qd for 1 week each month for 2 months
 - toenails 200mg PO qd x12 weeks, or 400mg qd for 1 week each month for 3 months
- Fluconazole (Diflucan) 150mg once weekly x24 weeks (consider for those with complicated med regimens) (efficacy not as good as Lamisil or Sporanox; cure only about 32%)
- Reassure patient that oral agents will continue to work after stopping use. It may take a few months to see complete resolution
- Penlac Nail Lacquer (ciclopirox) x48weeks has complete cure rate of only 7% which means 1 in 15 patients will have a favorable outcome

Lice and Crabs

21. What is the treatment for pediculosis capitis and pediculosis pubis?

- Pediculosis capitis (lice) – wash scalp normally then towel dry → saturate scalp with permethrin cream (OTC Nix 1%) or pyrethrin (OTC Rid) for 10 minutes then rinse → repeat in 1 week due to resistance (CDC rec.)
 - Malathion lotion 0.5% (Rx) may be used instead of permethrin
 - Lindane is not used due to potential neurotoxicity and widespread resistance
 - Ivermectin can be used in resistant cases (not FDA approved). 200 mcg/kg PO x1, repeated in 2weeks
 - if younger than 2 years, then wet combing with conditioner or olive oil rather than insecticides performed q3-4 days for weeks
 - children may return to school after the first treatment session (wet combing or insecticide)
- Pediculosis pubis ("crabs") – permethrin 1% cream (OTC Nix 1%) or pyrethrin (OTC Rid) for 10 minutes then rinse → repeat in 1 week
 - Malathion or ivermectin can be used as alternatives (see above)
 - sexual partners need to be treated at the same time
 - bedding and clothing should be machine washed and dried in a hot dryer, dry cleaned, or bagged for a min of 72 hours

End of Session Quiz – Dermatology Part 1

1. When should antibiotics be used in the treatment of skin abscesses? (SU2 p216)
2. What medication is preferred in the treatment of scabies? (SU2 p219)
3. What are the characteristic features of necrotizing fasciitis? (SU2 p216)
4. What is the treatment for dry gangrene? What is the treatment for wet gangrene?
5. What medication options are available for the treatment of acne vulgaris? (SU2 p217)
6. What is the time-frame in the treatment of varicella?
7. What side-effects can arise from the use of oral isotretinoin?
8. HYQ: What is the appearance of molluscum contagiosum? (SU2 p219)
9. What is the treatment for molluscum contagiosum?
10. What is the treatment for tinea capitis? (SU2 p219)
11. What is the treatment for rosacea?

Dermatology Part 2

Inflammatory Skin Conditions (SU2 p219 – SU2 p221)

Erythema multiforme, Stevens-Johnson syndrome, and Toxic epidermal necrolysis (TEN) (SU2 p220)

1. What are the characteristic features of erythema multiforme?
 - Skin lesion with target appearance (dull red center, a pale zone, and a darker outer ring)
 - Lesions can take many different shapes (multiforme)
 - Lesions develop over 10+ days: macule → papule → vesicles/bullae in the center of the papule
 - Common sites: hands/forearms, soles/feet, face, elbows and knees, penis and vulva
 - Severe form (EM Major) always involves the mucous membranes → can become SJS/TEN
2. What is the treatment for erythema multiforme?
 - Stop any inciting medication
 - Symptomatic treatment with antipruritics
 - If severe → systemic glucocorticoids (although no proven effectiveness)
 - If patient also has h/o HSV → antiviral such as acyclovir or valacyclovir
3. What is the distinction between Stevens-Johnson syndrome and toxic epidermal necrolysis (TEN)?

SJS is the less severe form of TEN. In SJS skin sloughing (epidermal detachment) is limited to less than 10% body surface area. In TEN at least 30% of the skin is detaching. There is overlap between the two at 10-30% skin involvement.

Seborrheic dermatitis (SU2 p220)

4. What is the treatment for infantile seborrheic dermatitis (AKA cradle cap)?
 - Selenium sulfide (Selsun Blue) shampoo twice a week until resolved
 - Massaging olive oil into the scalp and leaving for 15 minutes can help remove scale when washing
 - +/- hydrocortisone 1% cream bid to affected area
5. How does seborrheic dermatitis manifest in adults?

Erythema, scaling, and white flaking in areas of sebaceous glands including eyebrows, nasolabial folds, face, external ear, scalp, upper trunk, and body folds (axilla, groin)
6. What diseases are associated with an increased incidence of seborrheic dermatitis?
 - Parkinson's, HIV, psoriasis, immunocompromised patients (e.g., transplant patients)
 - Exacerbations are common in emotional stress and hospitalizations
 - Severe intractable SD may point to HIV infection

Atopic dermatitis (SU2 p220)

7. What are the available treatments for atopic dermatitis (AKA eczema)?
 - Switching to a moisturizing soap (Dove, Aveeno) and adding an OTC emollient may be all that is needed for maintenance and mild cases
 - Hydration/Emollients: Cetaphil, Eucerin, Lubriderm, Aveeno, Aquaphor (or generic equivalents)
 - High-water/low-oil lotions will worsen xerosis and eczema, and high-oil creams and ointments will reduce xerosis
 - Calcineurin inhibitors: tacrolimus (Protopic) or pimecrolimus (Elidel)
 - Topical steroids
 - Antibiotics for open lesions (cover *Staph. aureus* and *Strep. spp.*)
 - Antihistamines
 - Leukotriene inhibitors (Singulair) – theoretical efficacy supported by weak studies
 - UV light therapy
 - Systemic steroids (1-2mg/kg/day in children then taper) only in severe cases and only for short duration
 - For very severe cases, consider methotrexate, cyclosporin, azathioprine (Imuran)

8. What are the possible side effects of the calcineurin inhibitors (Elidel cream or Protopic ointment) in the treatment of atopic dermatitis?
- Do not cause systemic side effects or skin atrophy like topical steroids. Safe on face/eyelids
 - Try to avoid in children younger than 2 years due to higher rates of URIs. However most dermatologists have no problems using these in those under 2 years because the alternative of using topical steroids would probably have more side effects
 - Preliminary studies suggest possible slight increase in risk of lymphoma. Therefore keep duration as short as possible

Psoriasis (SU2 p221)

9. What drugs are used in the treatment of psoriasis?
- Topical steroids (NEVER give oral steroids to someone with psoriasis)
 - Calcipotriene (vitamin D3 analog that inhibits epidermal cell proliferation)
 - Tazarotene (Tazorac) (topical retinoid → normalizes keratinocyte proliferation)
 - Coal tar (suppresses DNA synthesis)
 - Anthralin
 - Salicylic acid (keratolytic used to remove excess scale)
 - UV therapy- for patients with more than 10% (refer to a Dermatologist)
 - Soriatane (acitretin): 25-50mg PO qd
 - Kenalog injections into dermis
 - Enbrel: Anti-TNF agent approved for use in mod-severe psoriasis
 - Others agents: oral retinoids, methotrexate, cyclosporine

Pityriasis rosea (SU2 p221)

10. What is the treatment for pityriasis rosea?
- This is a self-limiting disease of 4-6 weeks, and no treatment is necessary. Sunlight is helpful.
 - If significant itching, may use a moderate potency topical steroid
 - If extensive disease or severe itching, phototherapy
 - Possibly beneficial but unproven:
 - Erythromycin 250mg four times daily x 14 days
 - Acyclovir 800mg five times daily x 7 days

Lichen Planus

11. What are the characteristic features of lichen planus?
- Skin involvement – pruritic, purple, polygonal papules and plaques that are shiny and flat and commonly occur on the flexor surface of the extremities (e.g., wrist)
 - Wickham's striae is a white, lacelike pattern on the surface of the papules/plaques
 - Mucous membrane involvement – Wickham's striae in the lateral buccal mucosa and possibly erosive lesions that may become infected with Candida
 - Genital involvement – usually limited to violaceous papules on the glans penis in men and vulva of women
12. What infections are associated with an increased likelihood of lichen planus?
13. What is the treatment for lichen planus?
- Corticosteroids of medium to high-potency – topical or intralesional (oral if topical unsuccessful)
 - Acitretin (an oral retinoid)

Decubitus Ulcers

14. What are the different stages of decubitus ulcers?

Stage I	Pressure related alteration in intact skin such as change in color, consistency, sensation, or temperature
Stage II	Superficial ulcer, abrasion, or shallow crater
Stage III	Full thickness skin loss with damage to the subQ tissues; deep crater
Stage IV	Extensive destruction or necrosis; damage to muscle, bone, or supporting structures

15. What are the treatments for the different stages of sacral decubitus ulcers?

- Address nutrition
 - Insure adequate protein intake (1-1.2 g/kg/day) & calorie intake
 - Possibly helpful: daily MVI, zinc sulfate 220mg PO qd, vitamin C 500mg qd, arginaid (with L-arginine)
- Relieve the pressure:
 - Turn q2 hours (30° angle on side) or advise patient to have frequent small changes in position
 - Appropriate, soft mattress
 - Elevate heels above bed surface with pillow placed lengthwise and curled at the end, or use heel protectors (which usually don't work)
- Stage I – as above +/- application of a protective dressing such as Xenoderm
- Stage II – routine wound care and hydrocolloid dressing (avoid wet-to-dry dressings)
- Stage III or IV – wound care with debridement and hydrocolloid dressing

Stasis Dermatitis (HY)

16. What is the characteristic appearance of stasis dermatitis?

Eczematous dermatitis with inflammatory papules, scaly and crusted erosions, increased pigmentation, stippling with recent and old hemorrhages, and possible ulceration

17. What is the treatment for stasis dermatitis?

- Compressive dressings or stockings with at least 20-30mmHg of pressure (usually 30-40mmHg)
- Elevation of the legs above the heart whenever possible but for at least 30 min 3-4 times a day
- Topical steroids
- Consider horse chestnut seed extract – 300mg (50mg of aescin) bid especially if unwilling to wear compressive dressing/stocking
- Aspirin 300-325mg/day (may accelerate the healing of venous ulcers)
(Treatment of ulceration from chronic venous insufficiency is not addressed here.)

End of Session Quiz – Dermatology Part 2

1. A patient presents with erythema multiforme. Which medications are the most common offenders? (SU2 p220)
2. What are the distinctions between erythema multiforme, Stevens-Johnson syndrome, and toxic epidermal necrosis (TEN)? (SU2 p220)
3. What is the classic presentation of pityriasis rosea? (SU2 p221)
4. What is the treatment for pityriasis rosea?
5. What are the clinical features of pityriasis versicolor? (SU2 p219)
6. What is the treatment for pityriasis versicolor?
7. What is the classic presentation of erythema nodosum? (SU2 p221)
8. What is the classic presentation of lichen planus?
9. What is the treatment for seborrheic dermatitis?
10. What are the treatment options for psoriasis? (SU2 p221)

Dermatology Part 3

Bullous Diseases (SU2 p221 – SU2 p222)

Pemphigus vulgaris and Bullous pemphigoid (SU2 p221)

1. What are the distinctive features of pemphigus vulgaris and bullous pemphigoid?

	Pemphigus vulgaris	Bullous pemphigoid
Bullae appearance	Flaccid; easy to rupture (positive Nikolsky)	Tense, hard; difficult to rupture
Presence of oral lesions	Almost always	Rare (10-35%)
Histologic location of antibodies	Epidermis	Dermal-epidermal junction (Basement membrane)
Type of antibody	Anti-desmosome	Anti-hemidesmosome

2. What is the treatment and prognosis for pemphigus vulgaris?

- Steroids – high-dose systemic (1mg/kg/day)
- Azathioprine or cyclophosphamide can be used as a steroid-reducing adjuvant
- Treat wounds as burns
- Antibiotics if infection is present
- Dermatologist referral and possible life-long suppressive therapy
- Prognosis – fatal if left untreated, mortality of 5% even with treatment

3. What is the treatment and prognosis for bullous pemphigoid?

- Topical steroids (e.g., clobetasol cream 20g bid) have now been shown to be more effective (decreased mortality and less complications) than oral steroids for bullous pemphigoid
- If topical steroids are not possible (high cost, difficult to apply, mucus membranes involved) → oral steroids (e.g., prednisolone 1mg/kg/day)

Porphyria cutanea tarda (SU2 p222)

4. What is the classic presentation of porphyria cutanea tarda?

- Chronic blistering lesions on sun-exposed areas of skin (usually dorsum of hands, face, forearms, legs)
- Facial hypertrichosis and hyperpigmentation
- Pseudoscleroderma with cutaneous thickening, scarring and calcification
- Elevated LFTs (AST, ALT, GGT)
- Hepatitis C infection is common
- Elevated “total plasma porphyrin”

5. What is the treatment for porphyria cutanea tarda?

- Phlebotomy
- Low-dose chloroquine or hydroxychloroquine
- Avoidance of alcohol, estrogens, iron supplements
- Sunscreen use

Neoplasms (SU2 p222 – SU2 p223)

Melanoma (SU2 p222)

6. Which type of melanoma matches the following description:

- Most common type of melanoma
- Non-pigmented melanoma
- Dark papule on the legs or trunk that bleeds with minor trauma
- Occurs on palms, soles, or beneath nail plate in patients with dark skin
- Dark lesion larger than 6mm with irregular, asymmetric borders

Pigmentation Disorders

7. What are the treatment options for melasma?

- Hydroquinone (3% solution or 4% cream)
- Azelaic acid 20% cream
- Flucinolone 0.01% + hydroquinone 4% + tretinoin 0.05%
- Prevention by minimizing sunlight exposure and by using a opaque sunblock (titanium dioxide or zinc oxide)

8. What are the characteristic features of vitiligo?

- Sharply demarcated patches of complete depigmentation (due to loss of melanocytes)
 - Borders are hyperpigmented
 - More common at acral areas and around body orifices
- Skin is of normal texture (which excludes morphea and lichen sclerosis)
- Associated with thyroid disease in 30% of patients (especially women)
- Most common at ages 20-30

9. What comorbidities are associated with vitiligo?

Autoimmune disorders: Graves disease, autoimmune thyroiditis, pernicious anemia, type 1 DM, primary adrenal insufficiency, hypopituitarism, alopecia areata, autoimmune hepatitis

10. What is the treatment for vitiligo?

- Sunscreen to minimize tanning of normal skin which would increase the contrast
- Dyes and make-up to camouflage depigmented areas
- Corticosteroids if < 10% of skin affected
 - If > 12 years, class III or IV → e.g., fluticasone propionate ointment or mometasone cream q-day for 4-6 months
 - If < 12 years, class V → e.g., fluticasone propionate cream or desonide 0.05% cream. q-day for 4 months
- Tacrolimus or pimecrolimus (calcineurin inhibitors)
 - do not cause skin atrophy like steroids
- Psoralens (topical or oral) + UV light (PUVA or UV-B) by dermatologist for extensive disease
- Surgical mini-grafting an option when medical therapy fails
- Depigmentation of normal skin to match regions of vitiligo using hydroquinone is a last resort

11. What treatment options are available for treating acanthosis nigricans?

- Treat the underlying disorder which may require weight loss, discontinuation of an offending agent (e.g., glucocorticoids, OCPs), or identification and removal of a malignancy.
- Lightening agents may be used which often include Retin-A (tretinoin) and topical steroids.
- Fish oil oral supplementation may also be used

Red Vascular Skin Lesions

12. What type of hemangioma does the following statement describe?

- Purple-red on face that does not regress with age
- Infant with bright-red lesion that regresses over months-years
- Benign small red papule that appears on skin with age
- Bright red papule with radiating blanching vessels
- Blue compressible mass that does not regress
- Red-pink nodule on a child that is often confused with melanoma

- What is the treatment for an uncomplicated infantile hemangioma? When are infantile hemangiomas worrisome?

- Since most uncomplicated infantile hemangiomas (AKA strawberry hemangioma) gradually resolve within the first two years of life (or at least 10% resolution each year), observation is usually the best treatment
- They are worrisome and require additional treatment (such as systemic steroids) if periorbital, in an airway, or associated with high-output heart failure

Hair Loss

13. What are the clinical features of alopecia areata?

- Asymptomatic, non-inflammatory, non-scarring areas of complete hair loss
- May be precipitated by stress
- Regrowth after 1st attack in 30% by 6 months, in 50% by 1 year, in 80% by 5 years
- 10-30% will not re-grow hair, 5% progress to total hair loss
- Obtain syphilis screen, CBC, BMP, ESR, TSH, ANA (to rule out pernicious anemia, chronic active hepatitis, thyroid disease, SLE, Addison's)
- Rule out trichotillomania (pulling-out one's hair) – look for broken hair shafts of different lengths, consider shaving a small patch and observe over a few weeks for growth

14. What is the treatment for alopecia areata?

- Fluocinolone oil and/or shampoo qd
- Intralesional steroid injection- most common therapy for limited involvement, triamcinolone 10mg/mL injected into entire patch q4-8 weeks, can be used in girls past age 7-9 and boys past age 10-12
- Minoxidil topical 5%- dosing is BID, works within 12 weeks, not best choice for children
- Anthrakinone cream- commonly used in children, growth within 2-3 months
- Squaric acid dibutylester (SADBE) or diphenylcyclopropenone (DPCP) rubbed into scalp creates an allergic response resulting in hair growth, both about 60% effective in children, may be best non-injection choice for children
- Topical steroids are ineffective due to poor scalp penetration. Oral steroids work well, but alopecia returns once stopped.

15. What is the treatment for androgenic alopecia?

- If signs of androgen excess in females, check serum testosterone, DHEA, and prolactin
- Men → finasteride +/- minoxidil. Women → minoxidil +/- spironolactone.
- Finasteride (Propecia) 1mg qd
 - Dose is 1mg qd for hair loss (Proscar 5mg qd is used for BPH)
 - Not used in women. Shouldn't even be touched by premenopausal women. Not effective in postmenopausal women.
- Minoxidil (Rogaine) 5% solution 1mL bid to affected areas
 - Can be used in both males and females. May use with finasteride or spironolactone.
 - 5% works better than 2%
 - 1mL bid to dry/involved scalp bid for at least 4 months. Results will be seen by 12 months. Use indefinitely. Discontinuation will result in a return to baseline.
 - SE: hypertrichosis (3%), pruritus, dermatitis, scaling
- Spironolactone 100-200mg PO qd

End of Session Quiz – Dermatology Part 3

1. What is the most important prognostic indicator in cases of melanoma? (SU2 p223)
2. What dermatologic condition matches the following statement?
 - Associated with obesity, diabetes, or malignancy (esp. if over age 50 years)
 - Pigmented plaques that appear to be stuck onto the skin
 - Black velvety plaques on flexor surfaces and intertriginous areas
 - Rough lesions on sun exposed skin that are easier to feel than see
 - Circular rash with central clearing on the trunk or arms
3. What is the classic appearance of basal cell cancer? (SU2 p222)
4. What is the classic appearance of squamous cell cancer? (SU2 p222)
5. What is the classic appearance of porphyria cutanea tarda? (SU2 p222)
6. HYQ: From the presentation, how might pemphigus vulgaris be distinguishable for bullous pemphigoid? (SU2 p221)
7. What are the treatment options for actinic keratosis? (SU2 p222)
8. What type of hemangioma does the following statement describe?
 - Purple-red on face that does not regress with age
 - Infant with bright-red lesion that regresses over months-years
 - Benign small red papule that appears on skin with age
 - Bright red papule with radiating blanching vessels
 - Blue compressible mass that does not regress
 - Red-pink nodule on a child that is often confused with melanoma
9. What treatments are available for androgenic alopecia?
10. What are the possible underlying causes of alopecia areata?

Gynecology Part 1

Menstrual Physiology (SU2 p225 – SU2 p229)

Menopause (SU2 p227)

1. How is menopause diagnosed?

- 12 months of amenorrhea in a woman over 45 is diagnostic and requires no additional work-up
- A woman over age 45 with irregular menses (oligomenorrhea) and menopausal symptoms (hot flashes, mood changes, sleep disturbances) can be assumed to be going through perimenopause
- Serum FSH levels increase in the perimenopausal period and after menopause, but it is of little diagnostic value beyond obtaining a history of menses and symptoms
- If younger than 45, other etiologies for oligo/amenorrhea must be excluded (TSH, serum hCG, prolactin, FSH)

2. What are the pros and cons of hormone replacement therapy for menopause?

Pros

- Control of menopausal symptoms (hot flashes, vaginal dryness/atrophy, urinary incontinence, emotional lability)
- Reduced risk of _____
- Reduced risk of colorectal cancer

Cons

- Not indicated for the prevention of chronic disease, stroke, heart disease, and osteoporosis (USPSTF)
- HRT doubles risk of - invasive breast cancer (+8 per 10,000) but not noninvasive breast cancer
 - Endometrial cancer
 - Venous thromboembolism (+8 PE's per 10,000)
- Increases risk of stroke by up to 32-41% (+8 per 10,000)
- Increases risk of heart disease by 29% (+7 per 10,000)
However, if taken at ages 50-59, HRT results in less coronary calcification on CT scan (NEJM 2007;356:2591). This may or may not correlate with less risk of heart disease in women taking HRT during ages 50-59
- Increases risk of biliary disease and need for biliary surgery

3. What non-hormonal options can be used in the treatment of menopausal hot flashes?

- Desvenlafaxine (Pristiq) – 100mg qd. only non-hormonal FDA drug approved for hot flashes. Also works as an antidepressant
- Venlafaxine (Effexor) – 37.5mg BID reduces frequency 52-62% and severity 57-67%, and results begin in the first week of therapy. Good choice if any depression, anxiety, fatigue, or isolation. Good first line drug
- Clonidine – reduces frequency 22% and severity 48%. Good choice if BP control is also needed. SE of dry mouth, constipation, and drowsiness
- Gabapentin (Neurontin) – about 50% reduction seen in a small trial. Good choice if insomnia, restless leg syndrome, seizure d/o, neuropathy, chronic pain
- Time – about 30-50% of women have symptom improvement within a few months, and most have resolution within 4-5 years
- Placebo – placebo effect is about 20-25% effective in reducing hot flashes

Contraception (SU2 p229 – SU2 p231)

4. What are the absolute contraindications to the use of oral contraceptive pills (OCPs)?

- Pregnancy (although accidental use in early pregnancy is not a/w congenital anomalies)
- History of thromboembolism (DVT, PE) or inherited thrombophilia
- History of estrogen-dependent tumor (endometrial or breast carcinoma)
- Cerebrovascular disease (history of stroke) or CAD
- Poorly controlled hypertension
- _____
- Hepatic disease/neoplasm (adenoma, cancer, hepatitis, cirrhosis)
- Abnormal vaginal bleeding of unknown etiology
- _____, neurologic symptoms, or vascular involvement (increased risk of stroke)

5. What are the advantages and disadvantages of combination oral contraceptives?

Advantages	Disadvantages
<ul style="list-style-type: none">• Reliable (<3% failure rate)• Reduce risk of endometrial and _____• Decreased incidence of ectopic pregnancy• Menses more predictable, lighter, less painful	<ul style="list-style-type: none">• Daily dosing• Does not protect against STDs• Breakthrough bleeding• Estrogen SE: bloating, weight gain, breast tenderness, nausea, headaches• Progesterone SE: depression, acne, hypertension• Increased risk of DVT• Elevated triglycerides

6. What type of liver pathology is associated with OCP use?

- Reversible liver cholestasis
- _____
 - Benign liver tumor which may undergo malignant transformation
 - Incidence is 3-4 per 100K long-term users vs. 0.1 per 100K in the general population
 - Development typically requires high-dose estrogen for over 5 years
- Budd-Chiari syndrome from hepatic vein thrombosis or IVC thrombosis
- Veno-occlusive disease of the terminal hepatic venules and hepatic sinusoids (similar to Budd-Chiari)
- Hepatocellular carcinoma
- Resulting cirrhosis, portal hypertension, or liver failure from one of the above

7. What medications are well known for reducing the effectiveness of oral combination contraceptive pills through changes in liver metabolism?

- Antibiotics: _____, (griseofulvin to a lesser degree)
- Anti-epileptics (i.e., phenobarbital, phenytoin, carbamazepine, topiramate, oxcarbazepine, primidone)
- Other: St John's wort

IUD

8. What are the contraindications for IUD placement?

- Current vaginal or cervical infection
- High risk for STDs/PID including multiple sexual partners or history of recurrent STDs.
- Known pregnancy or desire for pregnancy in the near future.
- Severe uterine distortion (bicornuate uterus, cervical stenosis, fibroids distorting the uterine cavity)
- Uterine bleeding that has not yet been worked-up
- Copper allergy or Wilson's disease → avoid copper IUD
- Breast cancer → avoid progesterone IUD

Menstrual Disorders and Issues (SU2 p229, SU2 p232 – SU2 p235)

Amenorrhea (SU2 p229)

9. What are the first steps in the work-up of a female with primary amenorrhea?

- Thorough history and physical exam
 - Congenital defects identified: imperforate hymen, transverse vaginal septum, vaginal agenesis
 - If signs of hyperandrogenism → serum testosterone and _____ to assess for an androgen-secreting tumor
 - If galactorrhea → serum _____ and thyrotropin to assess for prolactinoma
- Pelvic sonogram if uterus does not appear to be present or is difficult to assess
- If uterus absent → _____ and serum _____.
 - Androgen insensitivity syndrome (46,XY; elevated testosterone)
 - Abnormal mullerian development (46,XX; normal female testosterone levels)
- If uterus present → _____ and serum _____.
 - If beta-hCG high → pregnancy
 - If FSH high → karyotype for Turner syndrome (45,XO)
 - If FSH low → cranial MRI for hypothalamic or pituitary disease
 - If FSH normal → serum prolactin and thyrotropin

10. A 15-year-old girl comes in for evaluation of primary amenorrhea and on physical exam, a bluish bulge is evident where the vaginal orifice should be. What is the diagnosis?

11. What are the first steps in the work-up of a female with secondary amenorrhea?

- Serum beta-hCG to rule-out pregnancy
- Thorough history and physical exam
- Serum prolactin (r/o hyperprolactinemia), serum TSH (r/o thyroid disease), serum FSH (r/o ovarian failure)
- If signs of hyperandrogenism → serum DHEAS and total testosterone
- If all of the above are normal or h/o D&C → progestin withdrawal test (r/o Asherman's)

End of Session Quiz – Gynecology Part 1

1. HYQ: A female presents with primary amenorrhea, absent secondary sexual characteristics, and anosmia. What is the diagnosis?
2. HYQ: What is the initial step in the management of a woman presenting with secondary amenorrhea and new galactorrhea when the β -hCG is negative?
3. What are the basic components of a work-up for secondary amenorrhea?
4. What lab findings distinguish true precocious puberty from pseudoprecocious puberty? (SU2 p225)
5. What is the definition of premature ovarian failure? (SU2 p227)
6. What are some of the causes of pseudoprecocious puberty? (SU2 p225)
7. Which hormone level is associated with an increase in basal body temperature? How is basal body temperature increase associated with ovulation? (SU2 p229)
8. What are 4 different options for emergency contraception? (SU2 p230)
9. What are the absolute contraindications for OCPs?
10. What medications are known for reducing the effectiveness of combination OCPs?

Gynecology Part 2

Endometriosis (SU2 p233)

1. What are the characteristic features of endometriosis?

- Pelvic pain (most severe during menses, 2-7 days prior to menses, and possibly ovulation)
- 3 Ds: dysmenorrhea, deep dyspareunia, and dyschezia (painful defecation during menses)
- difficulties with fertility

Physical findings:

- Localized tenderness in the cul-de-sac or uterosacral ligaments (esp. at the time of menses)
- Palpable tender nodules in the cul-de-sac, uterosacral ligaments, or rectovaginal septum
- Pain with uterine movement
- Tender, enlarged adnexal masses
- Adhesions causing a fixed or retroverted uterus

2. What are the treatment options for treating endometriosis?

- Expectant management – if minimal symptoms or perimenopausal
- Pain control with NSAIDs
- Hormonal therapies:
 - Combined OCPs dosed continuously – common first-line option with prn NSAIDs
 - GnRH agonist (nafarelin, leuprolide, or goserelin) for 6-12 months – induces a medical menopause, used in patients with moderate-severe pain, side-effects can be managed by “add-back” hormones
 - Progestin (PO, IM, IU) – usually 2nd or 3rd line because of breakthrough bleeding and other SE including depression and weight gain
 - Danazol for 6 months – induces a medical menopause but no “add-back” therapy available, usually a 3rd or 4th line option
 - Aromatase Inhibitors (anastrozole, or letrozole) – used with GnRH agonist or OCP otherwise follicular cysts develop
- Surgical intervention
 - Laparoscopy surgery to confirm diagnosis and ablate ectopic endometrial tissue and lyse adhesions
 - Hysterectomy with bilateral salpingo-oophorectomy (TAH/BSO), lysis of adhesions (LOA), and removal of endometrial implants

3. What is the first-line treatment for a young, infertile female with obvious signs and symptoms of endometriosis?

4. Abnormal Uterine Bleeding – Basic Evaluation

History

- Confirm excessive blood loss. Women with normal menses tend to: change tampons at ≥ 3 hr intervals, use fewer than 20 tampons/pads per cycle, seldom need to change a tampon/pad during the night, and pass clots less than 1 inch in diameter
- Menses frequency and duration recently and usually. Irregular heavy bleeding is often due to anovulation. Regular heavy cycles suggest fibroids, bleeding d/o, or adenomyosis
- Bleeding relationship to activities such as coitus
- Trauma. Foreign bodies. Abuse
- Associated symptoms such as pelvic pain, vaginal discharge, changes in bowel or bladder function, breast discharge, hot flashes, hirsutism or hair loss, hypo/hyperthyroidism, weight gain or loss
- Bleeding disorder history both personal and family history. Bleeding gums or bleeding with procedures such as tooth extraction, childbirth, or surgeries
- PMH, Pregnancy, Meds (esp. OCPs, IUD, steroids)

Basic Studies

- PE including speculum exam, bimanual exam, thyroid palpation, and general overview
- Lab – β HCG (r/o pregnancy or mole), pap smear, wet prep, GC probe, CBC (r/o leukemia, anemia, and thrombocytopenia), bleeding time (r/o von Willebrand's), PT/PTT/INR, TSH
- If over age 35 \rightarrow EMB to r/o endometrial hyperplasia or cancer
- If risk of endometrial cancer and over age 18 \rightarrow EMB
(endometrial cancer risks include personal or FH of ovarian, breast, colon, or endometrial cancer; tamoxifen use; chronic anovulation (ie. PCOS); obesity; estrogen therapy; prior endometrial hyperplasia; or DM)
- Ultrasound of pelvis (transvaginal and transabdominal) is usually appropriate

What is the most likely cause of abnormal uterine bleeding (AUB) in the following patients?

Most common cause of abnormal uterine bleeding	
Positive beta-hCG + intrauterine pregnancy + closed os	
Enlarged uterus + menometrorrhagia for months	
Bleeding associated with severe menstrual pelvic pain	
Menorrhagia + perimenopausal	
AUB started with menarche	
Positive beta-hCG + severe pain + no fetus in uterus on US	
Metrorrhagia especially after intercourse + no pain + normal sized uterus	
Depression + constipation + AUB	

5. What medication options are available for controlling severe menorrhagia?

Outpatient Options – hemodynamically stable

- Estrogen for 21-25 days to thicken the endometrium (the lowest dose of estrogen to control bleeding is best to minimize complications of DVT/PE). After the 25 days, dose progesterone qd for 10 days. Once progesterone is stopped a heavy withdrawal bleed will occur.
- This is the most effective oral regimen.
- OCP (monophasic) containing 35mcg of ethinyl estradiol starting at 4 pills a day (one time or divided) then tapered by 1 pill a day every 2-3 days until qd dosing is reached on day 7-10. High dose OCP (2-4 pills a day) should be continued for at least a week after bleeding subsides. Standard qd dose OCPs can then be restarted and continued for 3-6 months to correct anemia.
- High dose progestin alone for 5-10days: Provera (medroxyprogesterone) 10-20mg bid, megestrol 20-60mg bid, or Micronor (norethindrone) 5mg qd-bid
- Also make sure to prescribe Phenergan 12.5-25mg pr prn N/V with any of the high dose estrogen therapies.

Inpatient – hemodynamically unstable

- IV access for possible transfusion. 2-4 liter NS or LR bolus. Type & Cross 2-4 units of PRBC.
- Tamponade – a Foley cath with 30cc balloon is inserted transcervically into the uterus then inflated
- IV Premarin 25mg q4hrs until bleeding stops for up to 24hrs to stabilize and regrow endometrium
- Phenergan 12.5-25mg IV/PO/pr to prevent N/V a/w high dose estrogen
- After bleeding is stabilized, switch to the above outpatient therapy.

Polycystic ovary syndrome (PCOS) (SU2 p234)

6. What medications are used in the treatment of polycystic ovarian syndrome (PCOS)?

- Exercise and weight loss
- _____ suppress LH and FSH, regulates cycles, and decreases circulating estrogen (which increases risk of breast and uterine cancers)
- If OCP not an option, then Provera 10mg for 7 days each month to induce bleeding after the 7 days in order to prevent endometrial hyperplasia
- _____ start 500mg qd x1week → 500mg bid x1week → 500mg tid w/ meals x1week → 1000mg bid (up to 2,500mg/day). Will facilitate weight loss, improve cholesterol profiles, reduce BP, and reduce CV risks; some women may start ovulating solely with metformin therapy
- _____ start 25-50mg PO bid and taper upward to 100mg bid, add this drug to OCPs if patient is not satisfied with clinical response after 4-6m of OCPs, must be stopped in pregnancy due to risk of antiandrogen effects in male fetus.
- Consider statin (simvastatin) to lower lipid and testosterone levels
- If pregnancy desired, then clomiphene can be used and when metformin alone is ineffective. Clomiphene is better than metformin for fertility so reach for it first if pregnancy desired asap.
- Antibiotics as needed for acne

Sexually Transmitted Diseases (SU2 p236 – SU2 p238)

7. What are the diagnostic features of pelvic inflammatory disease (PID)?
- Suspect in any sexually active women with lower abdominal pain.
 - Have a very low threshold for diagnosing since the consequences of under-diagnosing are so great (e.g., death and infertility) Treat empirically if abdominal pain + one of the following:
 - _____ or adnexal tenderness
 - Temp > 101° F
 - Leukocytosis on CBC
 - Elevated ESR or CRP
 - New/unusual purulent cervical or vaginal discharge
 - WBCs on wet prep of vaginal secretions
 - Imaging may reveal thickened or fluid-filled fallopian tubes +/- fluid in the pelvic cul-de-sac
8. What is the treatment for pelvic inflammatory disease (PID)?
- Abx regimen needs to cover *N. gonorrhoeae*, *C. trachomatis*, Strep group A & B, Gram (-) bacilli (*E. coli*, *Klebsiella* spp., *Proteus* spp.), and anaerobes
 - Fluoroquinolones should no longer be used to treat *N. gonorrhoeae* due to resistance (MMWR, 2007;56:332). Consider their use when unable to use a cephalosporin (e.g., allergy) or if resistance is low in the community.
 - Outpatient Treatment Options – if temp <38 C, WBC < 11,000, no acute abdomen or rebound tenderness, (+) active bowel sounds, able to tolerate PO intake, and reliable adherence, then may consider outpatient treatment
 - _____ 250mg IM/IV single dose + _____ 500mg PO bid x14 days + _____ 100mg PO bid x14 days
 - In place of ceftriaxone, may use cefoxitin + probenecid, or may use a different 3rd generation cephalosporin (cefixime, ceftizoxime or cefotaxime)
 - Make sure pt has clinic follow-up in 2-3 days
 - Inpatient Treatment Options – anyone that you are not comfortable treating as an outpatient. Average length of stay is 2-5 days.
 - Cefoxitin for at least 48hrs (or Cefotetan) + Doxycycline
 - Clindamycin + Gentamycin
 - Ampicillin-sulbactam (Unasyn) + Doxycycline
 - Doxycycline dosed IV can be painful, but many recommend the first 1-2 doses IV for inpatients
 - May switch to oral therapy 24 hours after clinical improvement (mild or absent pelvic tenderness): Doxycycline 100mg PO bid for a total of 14 days
9. Pelvic prolapse
- Historical clues: Pelvic pressure or heaviness, obvious protrusion of tissue out of the vagina, “feels like I’m sitting on an egg”
 - Types
 - Cystocele Prolapse of bladder into vagina
 - Rectocele Prolapse of rectum into vagina
 - Enterocele Prolapse of small bowel into vagina (usually following hysterectomy)
 - Uterine prolapse Prolapse of uterus into vagina
 - Treatment
 - Mild → pelvic floor exercises and/or physical therapy with behavior modification (e.g., timed voiding)
 - Moderate → pessary
 - Severe → surgical correction

End of Session Quiz – Gynecology Part 2

1. A sexually-active woman presents with the classic symptoms of cystitis. Gram stain of the urine shows no organisms. What organism do you suspect is the cause of this patient's symptoms?
2. How is the diagnosis of pelvic inflammatory disease made?
3. What medications are used in the treatment of PCOS?
4. What is the most common cause of female infertility? (SU2 p233)
5. What are the distinguishing features of bacterial vaginosis, Candida vaginitis, and Trichomonas infection? (SU2 p235)
6. HYQ: When is an endometrial biopsy a necessary part of the work-up for abnormal uterine bleeding?
7. What is the treatment for gonorrhea? Chlamydia?
8. What are the complications of PID?
9. What is the presentation of the various stages of syphilis?
10. What medications can be used in the treatment of syphilis? (SU2 p237)

Gynecology Part 3

Gynecologic Neoplasms (SU2 p239 – SU2 p242)

Endometrial cancer (SU2 p239)

1. What is the most important prognostic factor in endometrial cancer?
_____ > depth of myometrial invasion

Cervical cancer (SU2 p240)

2. What are the current recommendations for pap smears in patient's no history of abnormal pap?
- Initiate screening at age _____ or _____ years after the onset of sexual activity
 - Frequency of pap smears:
 - At least every three years (USPSTF)
 - Annually in women under age 30 (ACS and ACOG) or every 2 years if using liquid based testing (AKA Thin-prep)
 - Every 2-3 years if 30+ years of age and 3 consecutive normal pap smears (ACS and ACOG) or every three years if receiving pap smear + HPV testing
 - Screening may be stopped at age 65 (USPSTF), 70 if adequate recent normal Paps (ACS), or on an individual basis (ACOG)
 - If hysterectomy for benign disease, there is no need to screen for cervical cancer

3. What are the general treatment strategies for squamous cell cancer of the vagina?

Stage	Treatment
Stage I – less than 2cm	
Stage I – greater than 2cm	
Stage II, III, and IV	

4. Lichen Sclerosus

- Chronic inflammatory condition of the anogenital region, most commonly affecting postmenopausal women
- Classic late findings – ivory or porcelain-white macules and plaques with pruritus
- Treatment – Low threshold for punch biopsy to r/o SCC; steroids (clobetasol) or pimecrolimus

Disorders of the Breast (SU2 p242 – SU2 p245)

5. What is the differential diagnosis of gynecomastia?
- Puberty (resolves spontaneously in 6m to 2yrs)
 - Medications: spironolactone, digitoxin, cimetidine, amiodarone, ketoconazole, haloperidol, HIV HAART therapy
 - Drugs: alcohol, marijuana, heroin, anabolic steroids
 - Herbal agents: tea tree oil, lavender oil
 - Cirrhosis
 - Hypogonadism (e.g., Klinefelter's, hyperprolactinemia)
 - Testicular germ cell tumor
 - Hyperthyroidism
 - Hemodialysis patients

Fibroadenoma (SU2 p243)

6. What is the work-up for a fibroadenoma appearing breast mass in a woman younger than 35 years-of-age?
If younger than 35 and the mass is non-suspicious, have the patient return 3-10 days after the next menstruation for reevaluation, and if the mass persists then start with a fine-needle aspiration.
- If solid and benign or inconclusive → repeat FNA or core biopsy or excisional biopsy
 - If solid and malignant → treat
 - If cystic, clear fluid, and the mass disappears → reassurance, discard fluid, and follow-up in 1 month
 - If cystic, bloody fluid → cytology on the fluid, +/- core or excisional biopsy
 - If cystic but residual tissue or thickening → core or excisional biopsy
(Note that a mammogram is not a component of this work-up.)

End of Session Quiz – Gynecology Part 3

1. HYQ: What is the most likely cause of bloody nipple discharge?
2. Which type of breast disease matches the following description?
 - Most common breast cancer
 - Often presents with serous or bloody nipple discharge
 - Most common mass in patients 35-50
 - Most common tumor in teen and young women
 - Breast mass accompanied by redness, pain, and warmth
3. What are the risk factors for endometrial cancer? What are the risk factors for ovarian cancer?
4. What serum marker may be elevated in cases of endometrial cancer? Ovarian cancer?
5. What is the next step in the management of a CIN 2 cervical lesion identified on biopsy in a woman who has completed fertility? (SU2 p240)
6. What is the next step in the management of an ASCUS pap smear with a negative HPV test? A positive HPV test? (SU2 p240)
7. What is the next step in the management of an AGUS pap smear?
8. What type of ovarian tumor is associated with psammoma bodies? Estrogen excess? Androgen secretion? (SU2 p241)
9. What is the treatment for ductal carcinoma in situ of the breast? (SU2 p245)

Obstetrics Part 1

Normal Pregnancy Physiology (SU2 p246 – SU2 p247)

1. What is Goodell's sign? What is Chadwick's sign? What is Hegar's sign?
 - Goodell's sign – softening and cyanosis of the _____ at 6 weeks gestation
 - Chadwick's sign – bluish discoloration of the _____ due to vascular congestion at 8-12 weeks gestation
 - Hegar's sign – softening of the _____ at 6 weeks gestation

Prenatal Care (SU2 p246 – SU2 p249)

2. How many additional calories are needed on a daily basis during pregnancy and breast feeding?
 - During pregnancy, an additional 340 kcal/day is needed in the second trimester and 452 kcal/day is needed in the third trimester
 - During breast feeding, an additional 500 kcal/day is required to breastfeed, but since fat stores developed during pregnancy begin to be mobilized, only an additional dietary 330 kcal/day is needed
3. What dose of folic acid is recommended to mothers for the prevention of neural tube defects?
 - _____ folic acid daily is recommended to all women of childbearing years (CDC rec.) to reduce neural tube defects by 57%
 - higher doses of folic acid daily reduce the risk of neural tube defects even more
 - If previous child with neural tube defect, recommended folic acid intake starting the month prior to pregnancy is 4 mg daily (AAP, ACOG)
4. What change is responsible for physiologic anemia of pregnancy? At what gestational age is it most apparent? When should anemia in pregnancy be treated with oral iron?
 - This greater increase in plasma volume as compared to red cell mass is most apparent during the second trimester
 - Treat anemia in pregnancy with iron replacement when hemoglobin falls below _____ g/dL in the first or third trimesters or when less than _____ g/dL in the second trimester
5. What are the indications for percutaneous umbilical blood sampling (PUBS)?
In most cases fetal amniocentesis is sufficient and safer than PUBS. PUBS (AKA cordocentesis) is preferred in the following circumstances:
 - 2nd and 3rd trimester when karyotype results are required within a few days
 - Diagnosing fetal hyper- or hypothyroidism
 - Diagnosing and managing fetal thrombocytopenia
 - _____

Prenatal Visits (SU2 p246)

6. What is Naegele's rule for estimating delivery date?
LMP + 7 days – 3 months + 1 year = estimated delivery date
7. In pregnancy, which vaccines are currently indicated, and which are contraindicated?
- _____ q10 years (OK in pregnancy. Dose Td in 2nd or 3rd trimester.)
 - _____ annually (OK in pregnancy. Dose in 2nd or 3rd trimesters)
 - _____, _____, and _____ if indicated (OK in pregnancy)
- Contraindicated Vaccines in Pregnancy
- _____
 - _____
 - _____
- Postpartum or Post-abortion Vaccines
- If Rubella non-immune (titer <10), then Rubella vaccine prior to DC
 - If no h/o tetanus vaccine in last 10 years, then administer Tdap vaccine prior to DC
 - If no evidence of varicella immunity (h/o chickenpox/shingles, h/o vaccine, or serologic confirmation), then varicella vaccine prior to DC. 2nd dose 4-8 weeks after the first
8. How do beta-hCG levels change during early pregnancy?
9. Where would you expect to find the uterus on physical exam throughout pregnancy?
- 12 weeks - _____
 - 16 weeks - _____
 - 20 weeks - _____
 - 20 – 36 weeks - _____

Preeclampsia (SU2 p251)

10. HYQ: A 30-year-old female with hypertension is current on an ACE inhibitor but has just discovered she is pregnant. Knowing that ACE inhibitors are teratogens, you decide to switch her to a different medication for her hypertension. What medications are commonly used in the management of chronic hypertension in pregnancy?

End of Session Quiz – Obstetrics Part 1

1. HYQ: What diagnosis would you suspect with hypertension in pregnancy prior to 20 weeks gestational age?
2. HYQ: Quad screen shows decreased AFP, decreased unconjugated estriol, elevated inhibin A, and elevated beta-hCG. What diagnosis do you suspect?
3. HYQ: At what Hgb level should physiologic anemia of pregnancy be treated as iron deficiency anemia?
4. HYQ: What supplements should be given to women on anticonvulsants during pregnancy?
5. What additional supplements should be given to complete vegetarians during pregnancy?
6. What is the difference between preeclampsia and gestational hypertension? (SU2 p251)
7. For how long is magnesium sulfate continued after delivery in preeclampsia? In eclampsia? (SU2 p251)
8. How do the following parameters change during pregnancy? (SU2 p248)
 - TSH
 - Blood pressure
 - Serum pH
 - Cardiac output
 - Ventilation
9. How much folate is needed in pregnancy? Iron? Calcium? (SU2 p248)
10. When can amniocentesis for karyotype be performed? Chorionic villous sampling? (SU2 p249)

Obstetrics Part 2

Maternal nausea and vomiting (SU2 p252)

11. How is hyperemesis gravidarum distinguished from normal morning sickness?

Weight loss exceeding ____ % of pre-pregnancy body weight and detection of ketonuria due to starvation are usual markers used to distinguish hyperemesis gravidarum from morning sickness.

12. What work-up should be performed in a patient with hyperemesis gravidarum?

- Weight, orthostatic blood pressures
- Serum _____, serum electrolytes, and urine ketones
- (Expected, non-worrisome lab abnormalities a/w vomiting: elevated AST and ALT (but each < 1000), elevated amylase and lipase (but each < 5x normal), and elevated bilirubin (but < 4 mg/dL))
- Ultrasound to detect gestational trophoblastic disease (molar pregnancy) and multiple gestations

13. What are the treatment options for hyperemesis gravidarum?

- Conservative OTC nausea/vomiting control: Vitamin _____ 25mg tid, Ginger 250mg tid, Unisom (_____) 12.5mg bid (A), acupressure wrist bands (placebo effect)
- Prescription nausea/vomiting control: promethazine (C), ondansetron (B) or granisetron (B), metoclopramide (B)
- If dehydrated, IV fluids in ER or as inpatient (daily Chem 7, Mg, Phos)
- If vomiting for more than 3 weeks, multivitamins + thiamine 100mg IV daily for 2-3 days
- If refractory to above and losing weight, then NG tube feeds (parenteral nutrition only as a last resort)

Maternal drug use (SU2 p253)

14. What adverse effects can be seen with maternal marijuana use during pregnancy?

- At least six joints per week → small head circumferences in children at all ages (Ottawa study)
- No association between prematurity or congenital anomalies
- Increases risk of using alcohol and cigarettes during pregnancy which are both harmful to the fetus
- Small studies show a later in life problems including increased incidence of psychiatric problems (ADHD, depression, and substance abuse) and increased incidence of certain cancers (non-lymphoblastic leukemia, rhabdomyosarcoma, and astrocytoma)

15. What adverse effects can be seen with maternal ACE inhibitor or ARB use?

_____ (+/- renal failure) → oligohydramnios → intrauterine growth restriction (IUGR), limb contractures, _____, lack of skull ossification (→ craniofacial deformation), in utero death

16. What doses of radiation are considered safe in pregnancy?

- Less than 0.05 Gy (5 rads) over the pregnancy – no evidence of any harm to the fetus
- Risk of fetal malformations increases after 0.10 Gy (10 rads)
- Examples of fetal radiation exposure in maternal imaging: IVP (up to 0.9 rads), barium enema (up to 1.6 rads), abdominal CT (about 0.25 rads)
(1 Gray = 100 rads)

Newborn TORCHES / Congenital Infections (SU2 p253)

17. What are the features of congenital syphilis?

Early manifestations (first 5 weeks of life)

- Hepatosplenomegaly, elevated LFTs
- Hemolytic anemia, jaundice
- Rash followed by desquamation of hands and feet
- Snuffles (blood-tinged nasal secretions)
- Radiographic changes at birth: metaphyseal dystrophy and periostitis

Late manifestations (if left untreated in the first 3 months of life)

- Hutchinson teeth (notching or blunting of the upper incisors)
- Saddle nose deformity
- Frontal bossing
- Saber shins (anterior bowing of the tibia)

18. What are the signs and symptoms seen in a newborn exposed to rubella virus in utero (congenital rubella)?
 - Findings at birth: IUGR, radiolucent bone disease, hepatosplenomegaly, thrombocytopenia, purpuric skin lesions (blueberry muffin rash), hyperbilirubinemia
 - Sensorineural deafness
 - Cataracts, glaucoma
 - Cardiac malformations: _____
 - Neurologic sequelae: mental retardation, meningoencephalitis, behavior disorders
19. What congenital defects are associated with in utero CMV infection?
 - 90% are asymptomatic at birth → 15% of these go on to develop progressive hearing loss (usually unilateral)
 - Symptoms at birth: small for gestational age, hepatosplenomegaly, petechiae/purpura, jaundice
 - Neuro: microcephaly, seizures, intracranial calcifications, feeding difficulties, hydrocephaly
 - Ophtho: chorioretinitis, optic atrophy, central vision loss
 - Thrombocytopenia, hemolytic anemia
20. What congenital defects are associated with new varicella infection during pregnancy?
 - Skin dermatomal scarring
 - Chorioretinitis, cataracts, microphthalmos, nystagmus, Horner syndrome
 - Microcephaly, cortical atrophy, mental retardation
 - Hypoplasia of the hands and feet
 - Low birth weight
 - Early death
21. What congenital defects are associated with maternal zoster reactivation?
22. When should you provide intrapartum antibiotic prophylaxis for Group B Strep (GBS)?
 - GBS detected on vaginal-rectal screening culture at _____ weeks
 - GBS bacteriuria during the current pregnancy
 - History of early onset GBS in a previous infant
 - Intrapartum fever ($\geq 38^{\circ}\text{C}$ or 100.4°F), preterm labor (<37 weeks gestation), or prolonged rupture of membranes (≥ 18 hrs) regardless of previous screening results
23. What antibiotics can be used for intrapartum prophylaxis for Group B Strep (GBS)?
 - _____ 5 million units IV then 2.5 million units IV q4 hours or
 - _____ 2g IV then 1g IV q4 hours
 - If PCN allergic (h/o rash only), Cefazolin 2g IV then 1g q8 hours
 - If PCN allergic (h/o airway compromise), then GBS culture with antibiotic sensitivity testing + one of the following: Vancomycin 1g IV q12 hours (or if sensitivity is known, use Clindamycin 900mg IV q8 hours or Erythromycin 500mg IV q6 hours instead of vancomycin)

Obstetric Complications of Pregnancy (SU2 p253 – SU2 p260)

Ectopic pregnancy (SU2 p253)

24. When can methotrexate be used in the treatment of ectopic pregnancy rather than surgical removal?

Methotrexate can usually be used successfully if the following criteria are met:

 - Hemodynamically stable
 - Reliably compliant with post-treatment monitoring
 - Pretreatment serum hCG $< 5,000$ mIU/mL
 - Tubal size less than 3cm and no fetal cardiac activity on US
 - No contraindications to methotrexate (breastfeeding, immunodeficiency, renal insufficiency,...)

End of Session Quiz – Obstetrics Part 2

1. Identify the following teratogens based on the defects:

Phocomelia	
Yellow or brown teeth	
Deafness	
Spina bifida, hypospadias	
Cardiac (Ebstein's) anomalies	
Craniofacial defects, intrauterine growth retardation, central nervous system malformation, stillbirth	
Fingernail hypoplasia, craniofacial defects	
Central nervous system, craniofacial, ear, and cardiovascular defects	
Goiter, cretinism	
Cerebral infarcts, mental retardation	
Clear cell vaginal cancer, adenosis, cervical incompetence	

2. What is the difference in presentation between the following different types of spontaneous abortion (SAB): threatened, inevitable, missed, completed, and incomplete?

IUP on sono + vag bleeding prior to 20 wks + closed internal cervical os	
Nonviable IUP on sono + open cervical os + no tissue passed	
Nonviable IUP (fetal demise) that has not passed (lack of uterine activity)	
Open cervical os + tissue at or beyond cervical os. Some, but not all, of the POC have passed	
All POC have been passed	

3. What are the indications for group B strep prophylaxis?

4. Which congenital infection is associated with the following defect? (SU2 p255)

- Initially asymptomatic but later develops a unilateral hearing loss
- Hydrocephalus, intracranial calcifications, chorioretinitis
- Rash, deafness, cataracts
- Hearing loss, chorioretinitis, intracranial calcifications
- PDA or pulmonary artery stenosis
- Anemia, blood-tinged nasal secretions, hepatosplenomegaly
- Temporal lobe encephalitis

5. What is the first line treatment for hyperemesis gravidarum?

Obstetrics Part 3

Oligohydramnios (SU2 p257)

1. What are the definitions of oligohydramnios and polyhydramnios?

Oligohydramnios – AFI _____ on ultrasound

Polyhydramnios – AFI _____ on ultrasound

Premature rupture of membranes (PROM) and Preterm labor (SU2 p258)

2. What tests are used to confirm rupture of membranes?

- Pooling of amniotic fluid in vaginal vault visible on sterile speculum exam
- _____: turns blue in the alkaline amniotic fluid (normally urine and vaginal secretions are acidic)
- _____: electrolyte rich amniotic fluid dried on a glass microscope slide crystallizes in a fern-leaf pattern
- Oligohydramnios confirmed by ultrasound can also be useful

3. How is preterm labor at less than 34 weeks gestational age managed?

- Expectant management, no Pitocin (even if PPROM)
- Hospitalization, bedrest, hydration, sedation, SCDs
- Tocolysis for 48 hours to delay delivery, dose steroids and mature fetal lungs
- Steroids
 - _____ 12mg IM q24 hours x2
 - _____ 6mg IM q12 hours x 4
 - Not necessary if > 34 weeks (no proven benefit after 34 weeks)
- Empiric _____ 2g IV then 1g IV q4 hours
- No SVE unless signs of labor (LOF, abd pains, ctxs on toco) or signs of infection.

4. How is preterm labor at 34 – 37 weeks gestational age managed?

- _____ if lung maturity proven, or beyond 34 weeks
- Steroids are of no benefit beyond _____ weeks
- _____ 2g IV then 1g IV q4 hours

5. What drugs can be used as tocolytics?

	Vasodilator: tachycardia, HA, flushing, +/- hypotension
	Most commonly used beta agonist for labor inhibition Contraindicated in cardiac disease and poorly controlled DM SE: maternal/fetal tachycardia
	No longer manufactured in US Only FDA approved for preterm labor
	Risk of magnesium toxicity Contraindicated in myasthenia gravis
	Possible premature closure of ductus arteriosus if given for more than 48 hours Decreases amniotic fluid production → oligohydramnios

6. What are the signs and symptoms of magnesium toxicity? What is the reversal agent?

- _____ (9.6-12 mg/dL)
 - _____ (12-18 mg/dL)
 - _____ (24-30 mg/dL)
- Reversal agent is _____ 1g IV over 5-10min for situations of cardiorespiratory compromise.

Infertility

7. What are the first steps in the work-up of an infertile couple?
- _____ collected after 48-72 hours of abstinence (40% of infertility is due to the male's sperm)
 - Evaluation for anovulatory cycles (20%)
 - Careful menstrual history
 - Basal body temperature monitoring – rise with progesterone increase (2 days after LH surge) corresponding to 1 day after ovulation
 - Home urinary ovulation test (detects LH surge in urine 1 day prior to ovulation) then postovulation serum progesterone level (> 5 ng/mL indicates ovulation)
 - +/- Endometrial biopsy on day 26 of cycle
 - _____ to r/o anatomic disorder (30%). Performed after menses cessation, but prior to ovulation.
 - +/- Postcoital test: Performed 1-3 days prior to ovulation, 2-12 hours after intercourse.
8. What diagnostic study is used to identify an anatomic cause for infertility in females?
9. What are some of the different anatomic causes of infertility in females?
- Scarring of Fallopian tubes most commonly from prior STD
 - _____
 - Adhesions from prior surgery or pelvic inflammation (STD, appendicitis, IBD)
 - Tumor, fibroids (leiomyomata)
 - Traumatic disruption of normal anatomy
 - Congenital anomalies such as septate uterus

Gestational Trophoblastic Neoplasms (SU2 p266)

Choriocarcinoma (SU2 p266)

10. What is the treatment for metastatic choriocarcinoma? (HY)
- _____ to eradicate any drug-resistant local disease and shorten the course of chemotherapy
 - Chemotherapy
 - Single agent for stage I and II – _____ or dactinomycin
 - Combination for stage II-IV – (EMA/CO) etoposide + methotrexate + dactinomycin then cyclophosphamide + vincristine
 - If future fertility is desired → chemotherapy alone then hysterectomy only if chemotherapy is ineffective

End of Session Quiz – Obstetrics Part 3

1. HYQ: What is the definition of PROM?
2. HYQ: When should you suspect chorioamnionitis in a patient with PROM?
3. HYQ: At what gestational age is labor managed actively instead of expectantly in preterm labor?
4. HYQ: What are the risk factors for placental abruption?
5. What is typically included in an infertility work-up?
6. A 19-year-old G2P1 presents at 9 weeks' gestation. She is vomiting all day every day, and has lost 7% of her body weight. On ultrasound, no gestational sac is found, but rather, there is a "snow storm" appearance to the uterine contents. What is the management of this patient?
7. This same patient is lost to follow-up, only to present back to clinic 8 months later complaining of vaginal bleeding and hemoptysis. Her uterus is enlarged, but on ultrasound, there is no gestational sac. Rather, there is a uterine mass with a mix of hemorrhagic and necrotic areas with parametrial invasion. What is her prognosis?

Obstetrics Part 4

Assessment of fetal well-being (SU2 p260)

1. Abnormal fetal heart rates

* Sensitivity is only about 85% and specificity is poor → many infants with nonreassuring FHR are in good condition.

- Fetal tachycardia – FHR > 160bpm for > 10 minutes
- Fetal bradycardia – FHR < 110bpm for > 10 minutes
- Sinusoidal – baseline 120-160 bpm with oscillating amplitude of 5-15 bpm, often due to fetal anemia
- Loss of variability – poor short-term or long-term variability, due to fetal sleep, CNS depression, or fetal acidosis; normal variability ranges from 6-25 bpm
- Early decels – begin with uterine contraction, due to pressure on the fetal head
- Variable decels – begin before, during, or after uterine contractions (variable onset), rapid fall in FHR often below 100bpm and rapid return to baseline, due to cord compression
- Late decels – begin after the uterine contraction, maximal after peak of contraction, and return to baseline after contraction complete; due to uteroplacental insufficiency / fetal hypoxia

2. What is the differential diagnosis for fetal tachycardia?

- _____
- Fetal anemia
- Fetal tachyarrhythmias (HR > 200)
- Fetal immaturity
- _____
- Maternal thyrotoxicosis
- Drugs or medications (_____, atropine)
- Fetal hypoxia

3. What type of fetal surveillance strategy is typical for high-risk pregnancies?

4. What is considered a normal, reactive non-stress test?

5. What are the first steps in the management of non-reassuring fetal heart tones during labor?

- Place maternal O₂ + turn off Pitocin (remove cervidil) + turn mom to left side
- Correct hyperstimulation if needed with _____ 0.25mg SubQ
- Correct any maternal hypotension (often a/w epidural). IVF bolus if needed
- SVE and place FSE (check for cord prolapse)
- consider need for intervention such as amnioinfusion or C-section

Stages of labor (SU2 p262)

6. What defines prolonged latent phase and prolonged active phase of labor dystocia (HY)

Prolonged latent phase

- Does not progress from latent to active phase for > 20hours in nulliparous patients or > 14 hours in multiparous pts

Prolonged active phase

- Active phase > 12 hours or
- Nulliparous < _____ cm/hour dilation
- Multiparous < _____ cm/hour dilation

7. What type of contraction pattern is typically necessary for cervical dilation to occur?

8. What are the 3 Ps that must be assessed in the event of labor dystocia?

- _____ - contraction strength, duration, and frequency
- _____ - fetal weight; fetal lie, presentation, and position
- _____ - adequacy of pelvis in shape and diameter

9. What is the definition of arrest of descent? In general, how is it managed? (HY)
- Arrest of descent occurs when the cervix does not continue to dilate during the active phase for ≥ 2 hours in multips and ≥ 3 hours in primips
- Management
- Reassess the 3 Ps
 - Placement of IUPC to better assess "Power" (> 200 MVU/10min)
 - Augmentation with oxytocin to augment "Power"
 - C-section if power, passenger, and passage are unable to be further augmented

Induction of labor (SU2 p262)

10. What is the definition of uterine hyperstimulation? What adrenergic antagonist is particularly helpful in reversing uterine hyperstimulation?
- Uterine hyperstimulation is defined by one of the following:
 - > 5 contractions over 10min with duration > 60 secs
 - Significant fetal heart rate decelerations
 - Terbutaline 0.25mg sub-q is often used as a tocolytic to stop uterine contractions.

Malpresentation (SU2 p263)

11. What are the management options in the case of a breech presentation?
- Spontaneous version often occurs (25% of the time after 36 weeks)
 - C-section at time of labor is currently the standard of care when cephalic version is unsuccessful due to a decrease in neonatal morbidity and mortality
 - _____ should be offered to all women with breech pregnancy when near term (after _____ weeks) (ACOG). Success rate is 35-75%
 - Vaginal delivery only if there is no time for a C-section
 - Deliver the feet and legs
 - Deliver the body (no traction above the pelvis) and rotate
 - When scapula visible, sweep posterior arm
 - Sweep anterior arm
 - Rotate head to OA position
 - Flex head for delivery by applying fingers to nose/maxillary prominences and applying maternal suprapubic pressure.

Breastfeeding

12. What are some of the contraindications to breastfeeding?
- _____
 - (Hepatitis B is present in breast milk, but no transmission has ever been reported. Educate patients of this, and let them make the choice.)
 - (Hepatitis C is present in breast milk, but no transmission has ever been reported. Educate patients of this, and let them make the choice.)
 - Need to use medications contraindicated in breastfeeding such as _____, chloramphenicol, topiramate, antineoplastic agent, or _____.
 - Use of illicit drugs
 - Infantile galactosemia
 - OK in breastfeeding: _____ (must also monitor levels in the newborn), _____ (does not pass into breast milk), _____ (passes into breast milk but appears to be relatively safe), _____ (passes into breast milk and generally recommended to limit consumption to 1 glass a day)
13. What is the treatment for mastitis in a postpartum female?
- Continue nursing and/or pumping breast milk
 - Rest and ibuprofen
 - Antibiotic choices for 10-14 days: dicloxacillin cephalixin, amoxicillin-clavulanate (if no response to other agents in 24-48 hours), TMP-SMX (for presumed MRSA), Add metronidazole 500mg PO tid (if odor suspicious of anaerobes)

14. How is a clogged milk duct (galactoceles) distinguished from mastitis?
15. What type of oral contraceptive can be given to lactating women?
16. What is the treatment for a woman that does not wish to breastfeed postpartum?

Postpartum bleeding (SU2 p265)

17. What are the risk factors for uterine atony?

- Uterine atony risk factors include:
 - Uterine over-distention: multiple gestations, polyhydramnios, macrosomia
 - Exhausted myometrium: prolonged labor, oxytocin stimulation
 - Decreased ability to generate contractions: chorioamnionitis, use of Mag sulfate (e.g., in preeclampsia), general anesthesia, uterine fibroids
 - Prior history: multiparity, prior history of postpartum hemorrhage,

18. What are the treatment options for uterine atony/postpartum hemorrhage?

- _____ 10 units IM x1
- Methergine (methylergonovine) 0.2mg IM (ergot agent that is contraindicated if HTN)
- Hemabate (PGF $_{2\alpha}$) 0.25mg IM or intra-uterine (contraindicated if asthma)
- Surgical options: uterine artery ligation, internal iliac artery ligation, selective arterial embolization, or hysterectomy

Postpartum Endometritis

19. What are the characteristic features of postpartum endometritis?

- Incidence < 3% after vaginal delivery, but increased risk with c/s, prolonged ROM, multiple cervical checks, manual placental removal, internal monitors (IUPC)
- Fever on postpartum day 1-7 (temp > 100.4°F twice or > 101°F)
- _____
- Absence of other potential fever etiologies (especially UTI)
- May also have: foul lochia, chills, lower abdominal pain
- Leukocytosis with a left shift

20. What is the treatment for postpartum endometritis?

- Antibiotic Options:
 - _____ +/- amp 2g IV q6 hour
 - Ceftriaxone + clinda
 - Ampicillin-sulbactam (Unasyn) + doxycycline
 - Cefoxitin + doxycycline
- Continue antibiotics until afebrile for 24-48 hours
- No need for PO antibiotics after IV antibiotics unless blood culture (+) in which case 7 days of oral antibiotics is given (i.e., clindamycin)

End of Session Quiz – Obstetrics Part 4

1. HYQ: How should a breech presentation be managed after 36 weeks gestation?
2. What is the treatment for a woman that does not wish to breastfeed postpartum?
3. HYQ: A postpartum female presents with pain and tenderness of the breast that is limited to only one region. There is no redness or warmth. What is the most likely diagnosis?
4. HYQ: When can OCPs be initiated in postpartum patients that do not intend to breastfeed?
5. HYQ: Within the immediate postpartum period a patient develops sudden onset of hypoxia, cardiogenic shock, and DIC. What etiology is at the top of your differential?
6. HYQ: A patient loses more than 500 cc of blood postpartum and now has anemia. Attempts at breastfeeding have been unsuccessful, as it appears she is unable to generate any milk. What diagnosis do you suspect? (SU2 p118)
7. What medications can be used to control postpartum hemorrhage?
8. What is the definition of arrest of descent?
9. What are the first steps in the management of uterine hyperstimulation (or non-reassuring fetal heart tones)?

Pediatrics Part 1

Development and Health Supervision (SU2 p267 – SU2 p272)

1. Car Seats

- < 1 year and < 20 lbs - Infant seat in back seat, facing backwards
- 1- 4 years and > 20 lbs - In back seat but still in car seat, now have option of facing forward
- Once forward-facing car seat is outgrown (4 years and 40 lbs) → booster seat in the back
- Keep in booster seat until the belt fits correctly (usually 4' 9" and 8-12 years) → then belted with a lap/shoulder belt in the back seat until 13 years of age

Health Concerns in the First Few Days of Life

2. How many calories are present in an ounce of breast milk? How many calories are present in an ounce of formula?
3. What are the caloric needs for an infant younger than 6 months?
4. What work-up should be performed on a newborn with a single umbilical artery?
 - Occurs in about 0.5% of births and 20-30% of these infants have major structural anomalies
 - _____ as 7% will have clinically significant renal asymptomatic anomalies
5. What are the most common problems that arise in premature infants?
_____, hypoglycemia, persistent PDA, infection/sepsis, retinopathy of prematurity, intraventricular hemorrhage, _____
6. What is the difference between caput succedaneum and cephalohematoma?
 - Caput – diffuse swelling or edema of the scalp, _____, resolves within a few days
 - Cephalohematoma – subperiosteal hemorrhage, _____, resolve in weeks to months
7. What is the next step in the management of a newborn female with bloody vaginal discharge in the first week of life?
8. **Benign Skin Findings in the Newborn**
 - Cutis Marmorata- _____ of the skin. Non-concerning.
 - Erythema toxicum neonatorum- 2-3mm yellow pustule with red base (similar appearance to white-head) arising in first 24-72 hours, microscopic examination of the pustular contents (not necessary for diagnosis) reveals numerous _____, usually gone by 3 weeks, tell parents to leave alone.
 - Harlequin color change- intense reddening of gravity dependent side and blanching of the nondependent side with a line of demarcation between the two, lasts a few sec-min, affects 10% of newborns (more common in newborns), most common in first few days of life, may be due to immaturity of autonomic innervation to skin vessels. Completely benign and will resolve in days to 3 weeks.
 - Macular stains (Stork bites)- permanent vascular malformations most commonly occurring on the nape of the neck, but also upper eyelids and middle of forehead. Benign but _____.
 - Milia (Miliaria)- due to accumulation of sweat beneath eccrine sweat ducts that are obstructed by keratin at the stratum corneum usually develops in 1st week after birth, a/w excess warmth (incubator, excess clothes, fever). No treatment is needed except possibly to reduce sweating with loose clothing and cool baths.
 - Mongolian spot- bluish discoloration over buttocks and base of spine, probably present on at least one of the parents. Benign and will usually fade in 1-2 years _____ to avoid later confusion with bruises.

- Neonatal Acne (acne neonatorum)- seen in 20% of infants, due to maternal hormone stimulation of sebaceous glands, usual age of onset is 3 weeks old. There is no increased risk of acne in adolescence. Mild lesions should be left alone and will resolve in 4 months. Severe inflammation can be managed with benzoyl peroxide or topical retinoids.
- Infantile Acne- different than neonatal acne, onset usually at 3-4 months of age, yellow papules around nose and cheeks, usually clears by age one but may persist until age 3. Severe inflammation can be managed with benzoyl peroxide or topical retinoids.
- Transient neonatal pustular melanosis- superficial pustules overlying hyperpigmented macules. Tell parents to leave alone.

Health Concerns: Birth to 6 months

9. What medications can be used to treat thrush in an infant?

10. What are the risk factors for Sudden Infant Death Syndrome (SIDS)?

- Usually occurs at _____ old
- Usually occurs while infant is sleeping
- Maternal risk factors: low SES, age <20, drugs/cigarettes during pregnancy, late or no prenatal care
- Infant risk factors: low birth weight, female, premature, prior sibling with SIDS, prone sleep position, sleeping on a soft surface, overheating
- Preventive measures: _____

Health Concerns: 6 months to 2 years

11. When would you expect the anterior fontanelle to close in a child? What would you suspect if it did not close in the expected time frame?

- Closed in 1% by age 3 months, 38% by 12 months, and 96% by 24 months
- If delayed, consider: _____, achondroplasia, _____, congenital hypothyroidism, and increased intracranial pressure
- If closure < 3 months, carefully monitor head circumference for craniosynostosis (premature closure of cranial sutures)
- Craniotabes (soft occipital bone, like ping-pong ball) from 3-12 months is highly suspicious for Rickets

Health Concerns: 3 years to 10 years

12. What are the signs of severe dehydration in a child?

	MILD	MODERATE	SEVERE
	Older child (3%) 30ml/kg	Older child (6%) 60ml/kg	Older child (9%) 90ml/kg
	Infant (5%) 50ml/kg	Infant (10%) 100ml/kg	Infant (15%) 150ml/kg
Skin turgor	Normal	Tenting	none
MM	Moist	Dry	Parched/cracked
Tears	Present	Reduced	none
Fontanelle	Flat	Soft	Sunken
CNS	Consolable	Irritable	Lethargic
HR	Normal	Mild increase	Increased
Cap refill	< 2 sec	About 2 sec	> 3 sec
Urine out	Normal	Decreased	Anuric

Health Concerns: Adolescence – 10-19 years of age (SU2 p269)

13. What mnemonic can you use for the questions you should ask during an annual adolescent exam?

HEADSSS:

Pediatric Rash

14. What are the clinical features of measles infection (rubeola)?

- Prodrome for 2-3 days: fever, malaise, anorexia, and 3 Cs (cough, coryza, conjunctivitis)
- _____ on buccal mucosa after 1-2 days (white-gray spots with a red base) → occur 48 hours prior to rash. Pathognomonic for measles
- Rash five days after prodrome onset: erythematous, maculopapular starting at the head then spreading to the feet → lasts 4-5 days → resolves from head down

15. What is the treatment for measles?

- Supportive therapy (antipyretics, fluids)
- Monitoring and treating bacterial superinfections such as pneumonia or otitis media
- _____
 - 100,000 IU PO x1 in 6- to 12-month-olds, 200,000 IU PO x1 if older than 12 months
 - WHO recommends vitamin A to all children with measles in areas where vitamin A deficiency is prevalent and measles mortality exceeds 1%
 - AAP recommends vitamin A given as above to children 6 months – 12 years hospitalized for measles or its complications or if immunodeficient or high likelihood of vitamin A deficiency (ophthalmologic evidence, intestinal malabsorption, malnutrition, or recent immigration from an area with high measles mortality)
- _____ is not yet well studied and not currently standard of care for measles despite that it harms measles virus in vitro

16. What are the classic features of rubella virus (German measles)?

- Low grade fever, lymphadenopathy, and rash:
- Prodromal malaise, fever, anorexia for 1-5 days prior to rash
- Lymphadenopathy – _____
- Erythematous, tender maculopapular rash that starts at the _____ then generalizes
- Rash persists 5 days and does not darken as does the rash of measles
- Fever is mild and generally only on day 1 in contrast to measles
- Polyarthritides may be seen for up to a month in women and adolescents

17. What are the characteristic features of Coxsackie hand, foot, and mouth disease?

- Constitutional fever and anorexia
- _____ on the buccal mucosa and tongue
- Small, tender, maculopapular/vesicular rash on the _____ and sometimes buttocks
- Duration is typically 3-5 days without complications

18. What are the signs and symptoms of scarlet fever caused by *Strep. pyogenes*?

- Rash that is coarse ("sandpaper-like"), erythematous and blanching ("sunburn-like"),
- Rash starts on the trunk then generalizes, but _____
- Rash is most prominent in skin creases of axilla and groin (Pastia's lines/sign)
- _____, beefy-red pharynx, cervical LAD
- Fever/chills
- Later desquamation of hands and feet (additional Ddx Kawasaki disease, toxic shock syndrome, acrodynia of mercury poisoning)
- Positive throat culture or rapid strep test

19. What are the characteristic symptoms of roseola infantum (HHV-6)?
- Sudden, high fever (exceeding 102° F) for 3-4 days
 - Child has no other signs of infection and often acts/plays normally
 - Rash that appears when fever dissipates and starts on the trunk then spreads over entire body and lasts 24 hours
 - Other common findings: erythematous papules on soft palate and uvula, mild cervical LAD, edematous eyelids, bulging anterior fontanel in infants
 - Commonly misdiagnosed as acute otitis media and subsequent antibiotic allergy!
20. What is the treatment for roseola infantum?

Other Childhood Infections

21. What is the differential diagnosis for cervical lymphadenitis in a child?
- If acute and bilateral → usually viral
 - URIs: Rhinovirus, Adenovirus, Influenza, group A strep.
 - Mono: EBV, CMV, Mycoplasma
 - Other viruses: HIV, HSV
 - If acute and unilateral → usually bacterial (*Staph. aureus*, group A strep, > anaerobes, GBS)
 - If chronic and unilateral:
 - *Bartonella henselae* → cat scratch fever
 - Toxoplasmosis
 - TB → scrofula
 - *Actinomyces israelii* → sinuses drain pus
 - Noninfectious causes (much less common): Kawasaki's syndrome, Hodgkin's lymphoma
22. What is PFAPA syndrome?
- Benign 4-5 day syndrome consisting of Periodic Fever, Aphthous ulcers, Pharyngitis, and Adenitis
 - Occurs monthly (q28 days)
 - Exclusion criteria include neutropenia, cough, coryza, diarrhea, severe abdominal pain, rash, arthritis, and neuro defects
 - Usually affects preschool-aged children (2-5 year olds)
 - Benign, self-limiting disease
 - Treatments
 - Glucocorticoids relieve symptoms in a matter of hours
 - Cimetidine may be used for prevention of episodes but is of questionable efficacy
 - Average duration of recurring symptoms is 4.5 years
23. What are the classic symptoms of pertussis?
- Incubation 7-10 days
 - Catarrhal stage (7-10 days): mild URI symptoms
 - Paroxysmal stage (_____): paroxysms of cough with inspiratory whoop that is worse at night and often with post-tussive emesis and exhaustion
 - Often confused with acute bronchitis
 - Convalescent stage (2-3 weeks): waning of symptoms
24. What is the treatment for pertussis?
- Antibiotic choices: _____ (5 days), erythromycin (14 days), clarithromycin (7 days), TMP-SMX (14 days)
 - Prophylaxis for close contacts (full course of one of the above antibiotics)
 - Isolation from school/day care until 5 days of antibiotics has been completed or three weeks after the onset of symptoms in untreated patients
 - Hospital admission (with isolation) indications for children with pertussis:
 - Respiratory distress
 - Pneumonia
 - Inability to feed
 - Cyanosis or apnea (with or without coughing)
 - Seizures

25. What additional work-up, if any, is needed in a child diagnosed with a UTI?

Voiding cystourethrogram (VCUG) and Renal U/S if:

- Child 2 months to 2 years of age (AAP)
- _____ of any age
- _____ (or unable to verbalize urinary symptoms)
- Febrile UTI or recurrent UTI
- Other red flags: abnormal voiding pattern, poor growth, FH of renal disease, hypertension, abnormalities of the urinary tract

End of Session Quiz – Pediatrics Part 1

1. What newborn skin finding matches the following description?

2-3mm yellow pustule with red base (similar appearance to white-head) arising in first 24-72 hrs, microscopic examination of the pustular contents (not necessary for diagnosis) reveals numerous eosinophils, usually gone by 3 wks	
Spider-webbing/marbling of the skin	
Intense reddening of gravity dependent side and blanching of the nondependent side with a line of demarcation between the two, lasts a few sec-min	
Due to accumulation of sweat beneath eccrine sweat ducts that are obstructed by keratin at the stratum corneum	

2. HYQ: If a patient with measles required treatment with medication, what medication would you use?

3. What is the treatment for roseola infantum?

4. What are some common causes of delayed closure of the anterior fontanelle?

5. When do children first exhibit stranger anxiety? When is gender identity typically formed? (SU2 p268)

6. When can children begin to eat solid foods? When can children drink cow's milk? (SU2 p270)

7. What interventions have been shown to reduce the incidence of SIDS?

8. How many total doses of the DTaP vaccine should a 6-year-old have received? (SU2 p272)

9. At what age is the meningococcal vaccine indicated? (SU2 p272)

10. How would you expect weight to increase in the first 2 years of life? (SU2 p267)

Pediatrics Part 2

Immunodeficiencies

Bruton's Agammaglobulinemia

- X-linked (Boys)
- B cell defic. → defective tyrosine kinase gene → low levels of all immunoglobulins
- Recurrent Bacterial infections after 6m
- No B cells on peripheral smear

Thymic aplasia (DiGeorge Syndrome)

- 3rd and 4th pouches fail to develop
 - ↓
 - no thymus → no T cells
 - no PTHs → low Ca^{2+} → tetany
- Congenital defects in heart / great vessels
- Recurrent viral, fungal, protozoal infections
- 90% have a chrom 22q11 deletion

Severe Combined Immunodeficiency (SCID)

- Defect in early stem cell differentiation
- Can be caused by at least 7 different gene defects (e.g., adenosine deaminase deficiency)

Presentation Triad

1. Severe recurrent infections
 - Chronic mucocutaneous Candidiasis
 - Fatal or recurrent RSV, VZV, HSV, Measles, Influenza, Parainfluenza
 - PCP pneumonia
 2. Chronic diarrhea
 3. Failure to thrive
- No thymic shadow on newborn CXR
 - DO NOT GIVE LIVE VACCINES.

Chronic Mucocutaneous Candidiasis

- T cell dysfunction v. *C. albicans*
- Rx: antifungals (ketoconazole, fluconazole)

Wiskott

Aldrich

Immunodeficiency

Thrombocytopenia and purpura

Eczema

Recurrent pyogenic infections

Ataxia-telangiectasia

- IgA deficiency
- Cerebellar ataxia, and poor smooth pursuit of moving target w/ eyes
- Telangiectasias of face > 5yo
- ↑ CA risk: lymphoma & acute leukemias
- Radiation sensitivity (try to avoid x-rays)
- +/- ↑AFP in children > 8m
- Average age of death – 25 y/o

Selective Immunoglobulin Deficiencies

- IgA deficiency is most common
 - most appear healthy
 - sinus and lung infections
 - 1/600 European descent
 - a/w atopy, asthma
 - possible anaphylaxis to blood transfusions and blood products

Chronic Granulomatous Disease (CGD)

- lack of NADPH oxidase activity → impotent phagocytes
- susceptible to organisms with catalase (*S. aureus*, *E. coli*, *Klebsiella spp.*, *Aspergillus spp.*, *Candida spp.*)
- Dx: (-) nitroblue tetrazolium (NBT) dye
 - no yellow to blue-black oxidation
- prophylactic TMP-SMX
- IFN- γ also helpful

Chédiak-Higashi Disease

- Defective LYST gene (lysosomal transport)
- Defective phagocyte lysosome → giant cytoplasmic granules in PMNs are diagnostic

Presentation Triad:

- Partial albinism
- Recurrent respiratory tract and skin infections
- Neurologic disorders

Job's Syndrome

- Hyperimmunoglobulin E syndrome
- Deficient IFN- γ → PMNs fail to respond to chemotactic stimuli (C5a, LTB₄)
- High levels of IgE and Eosinophils

Presentation Triad:

- Eczema
- Recurrent cold *Staph. aureus* abscesses (think of biblical Job with boils)
- Coarse facial features: broad nose, prominent forehead ("frontal bossing"), deep set eyes, and "doughy" skin
- Also common to have retained primary teeth resulting in 2 rows of teeth

Leukocyte adhesion deficiency syndrome

- Abnormal integrins → inability of phagocytes to exit circulation
- Delayed separation of umbilicus

Congenital malformations not yet discussed

1. What is the most common malformation of the head and neck?
2. What features are characteristic of fetal alcohol syndrome?
 - Facial features: short palpebral fissures, thin upper lip, smooth philtrum, flattened midface
 - Deficient brain growth: structural brain abnormalities, $\leq 10^{\text{th}}$ percentile for head circumference, abnormal neuro exam, variable mental retardation
 - Growth retardation: $\leq 10^{\text{th}}$ percentile for height and weight, failure to thrive despite adequate intake, disproportional low weight to height
3. What congenital defect is associated with lithium use during pregnancy?
Ebstein's anomaly:
 - Tricuspid leaflets are displaced into right ventricle, hypoplastic right ventricle, tricuspid regurg or stenosis
 - 80% have a patent foramen ovale with a R \rightarrow L shunt
 - Dilated right atrium \rightarrow increased risk of SVT and WPW
 - Physical exam: widely split S2, tricuspid regurgitation
4. What are the differences in presentation between a branchial cleft cyst and a thyroglossal duct cyst?
5. What are the common possible presenting features of tuberous sclerosis?
 - Distinctive brown, fibrous plaque on the forehead seen in infancy
 - Ash leaf spots (hypopigmented macules) – most easily identified with Wood's lamp
 - Shagreen patch (leathery cutaneous thickening usually on the lower trunk)
 - Facial angiofibromas (AKA adenoma sebaceum)
 - Seizures
 - Mental retardation
6. Which glycogen storage disease matches the following statement:

Lactic acidosis, hyperlipidemia, hyperuricemia (gout)	
Diaphragm weakness \rightarrow respiratory failure	
Increased glycogen in liver, severe fasting hypoglycemia	
Hepatomegaly, hypoglycemia, hyperlipidemia (normal kidneys, lactate, and uric acid)	
Painful muscle cramps, myoglobinuria with strenuous exercise	
Severe hepatosplenomegaly, enlarged kidneys	

End of Session Quiz – Pediatrics Part 2

1. Which immunodeficiency matches the following description?

Congenital heart defect + low calcium + recurrent infections	
Chronic mucocutaneous candidiasis + chronic diarrhea + failure to thrive	
Thrombocytopenia + eczema + recurrent infections	
Poor smooth pursuit of eyes + elevated AFP after 8 months	
Partial albinism + recurrent URIs + neurological disorders	

2. What genetic disorder matches the following description?

Cleft lip/palate, life expectancy < 1 yr, polydactyly	
High-pitched cat-like cry	
Elfin facial features, cardiac defects	
Tall, thin male with gynecomastia and testicular atrophy	
Obesity and overeating	
Micrognathia, life expectancy < 1 yr, rocker-bottom feet	
Happy mood, inappropriate laughter, ataxic gait	
Large ears, MR, macroorchidism	
MR, simian crease, GI and cardiac defects	
Short stature, infertility, coarctation of aorta	

3. When do infections typically begin in children with immune disorders?

4. Which glycogen storage disease matches the following statement?

Lactic acidosis, hyperlipidemia, hyperuricemia (gout)	
Diaphragm weakness → respiratory failure	
Increased glycogen in liver, severe fasting hypoglycemia	
Hepatomegaly, hypoglycemia, hyperlipidemia (normal kidneys, lactate, and uric acid)	
Painful muscle cramps, myoglobinuria with strenuous exercise	
Severe hepatosplenomegaly, enlarged kidneys	

Preventive Medicine & Vitamins

1. What are the current screening recommendations for breast cancer in average risk women?
 - Ages 40-49: Screening mammogram q1-2 years +/- clinical breast exam
 - Benefits of screening in this age group are uncertain, but most all expert groups recommend screening of this age group (ACS, AMA, ACOG, AAFP,...)
 - Every group agrees that at least offering a mammogram and shared decision making for this age range is appropriate.
 - Ages 50-69: Screening mammogram q1-2 years +/- clinical breast exam
 - Proven benefits and all expert groups agree here.
 - Ages 70+ and life expectancy > 10 years → Screening mammogram q1-2 years +/- clinical breast exam
2. What is the USPSTF recommendation for hypertension screening?
3. What is the USPSTF recommendation for cholesterol screening in patients without CAD risk factors?
4. What specific interventions are helpful in smoking cessation?
 - Counseling to quit at every encounter
 - Ask, assess, advise, assist, and arrange
 - Set a precise quit date while in clinic → instruct patient to throw away all smoking paraphernalia including ash trays and lighters
 - Offer American Cancer Society Quitline: 1-800-ACS-2345
 - Offer prescription therapies to help them quit, especially Chantix (see below)
 - Nicotine replacement doubles the quit rate
 - Much higher efficacy when used with bupropion (see below)
 - Patch: start 21mg → 14mg (start here in light smokers) → 7mg. Titrate over 10weeks.
 - Gum: chew until soft then park it between cheek and gum for nicotine absorption
 - Others: inhaler, nasal spray, lozenge
 - Prescription therapies to help them quit
 - Varenicline (Chantix) 30% 1 year success rate (12 week therapy), 44% 1 year success rate (24 week therapy) (JAMA 296:64,2006) SE: nausea, suicidal thoughts, bizarre dreams
 - Bupropion (Zyban or Wellbutrin) Instruct pts to quit after 1 week. More effective if used with nicotine replacement. SE: dry mouth, weight loss. Contraindications: seizure d/o, pregnancy, already on 3 or more psychiatric meds, bulimia

Vitamin Supplementation

5. Which vitamin deficiency matches the following description?
 - Increased RBC fragility
 - Dermatitis, cheilosis, glossitis
 - Peripheral neuropathy, angular cheilosis, glossitis
 - Hemorrhagic disease
 - Neural tube defects
 - Dermatitis, diarrhea, dementia
 - Megaloblastic anemia
 - Pernicious anemia
 - Bitot's spots, keratomalacia, xerophthalmia
 - Osteomalacia
 - Rickets

6. Which vitamin matches the following statement?

- Can be used to treat acne and psoriasis
- Involved in the hydroxylation of prolyl residues
- Requires intrinsic factor for absorption
- Deficiency may result from kidney disease
- Given prophylactically to newborns
- Can be used to elevate HDL and lower LDL
- Deficiency can be caused by isoniazid use
- Cobalt is found within this vitamin

7. Preventive Medicine for Ages 50-65

History and Counseling:

- Ask and assist with smoking and alcohol use
- Remind about exercise, high fiber (30-35g/day), sunscreen (SPF 15+), seatbelts, and high-risk behaviors
- Ask about depression, assault/abuse, advance directive/will
- Dental exam/cleaning q6 months-1 year
- Donation of blood and bone marrow (< 60 year old)

Physical:

- PE with BP check, BMI, skin cancer screen q1 year
- Snellen eye exam q1 year

Meds / Interventions:

- Daily MVI, Calcium 1200mg/d, and vitamin D \geq 600 IU/d
- Flu shot q1 year
- Tetanus-diphtheria booster (Td or Tdap) q10 years Use Tdap instead of Td if no h/o Tdap.
- Assess for varicella immunity by h/o chickenpox/shingles, h/o vaccine, or serology \rightarrow vaccinate if nonimmune
- Zostavax once after age 60 regardless of shingles history.
- Consider ASA 81mg QD (to help prevent MI, stroke, colon CA)
 - Proven benefit if 10year MI risk is > 10%, or annual MI risk is >1%
- Women who take ASA had a 25% decrease in deaths from all causes (Arch. of Int. Med. 2007;167:562)

Lab / Studies:

- FOBT q1 year
- Colonoscopy q10 years or Flex sig/BE q3-5 years
- TSH q5 years
- Lipid Panel q5 years
- Consider glaucoma screening q1-5 year (esp. Blacks)
- Consider EKG q5 year
- Consider regular Chem 14, UA, and CBC (q1-5 year)
- Offer HIV test
- Consider carotid ultrasound, ankle-brachial index, and AAA scan if over age 55 and at risk for CV disease including HTN, DM, smoking, hyperlipidemia, CAD, or FH of AAA. (Society for Vascular Surgery rec.)

Women:

- Pap smear, rectal, and breast exam q1 year
- Mammogram q1 year
- Establish risk for breast cancer at <http://www.cancer.gov/bcriskstool> and consider need for prophylactic Tamoxifen or Evista

Men:

- Testicular, prostate, and rectal exam q1 year
- PSA q1 year (controversial)
- Offer vasectomy

Preventive Medicine and Vitamins Quiz

1. How often should a normotensive patient get their blood pressure checked?
2. When should you start screening for high cholesterol in otherwise healthy patients?
3. Which medication for smoking cessation carries a black box warning about its side effect of suicidality?
4. What smoking cessation method doubles the quit rate?
5. What symptoms of vitamin deficiencies do you get if you haven't had enough folate? A? D? E? B₃?
6. What vitamin can be used to treat psoriasis?
7. What vitamin can be used to prevent deficiency with isoniazid?
8. What vitamin can be used to elevate HDL and lower LDL?



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